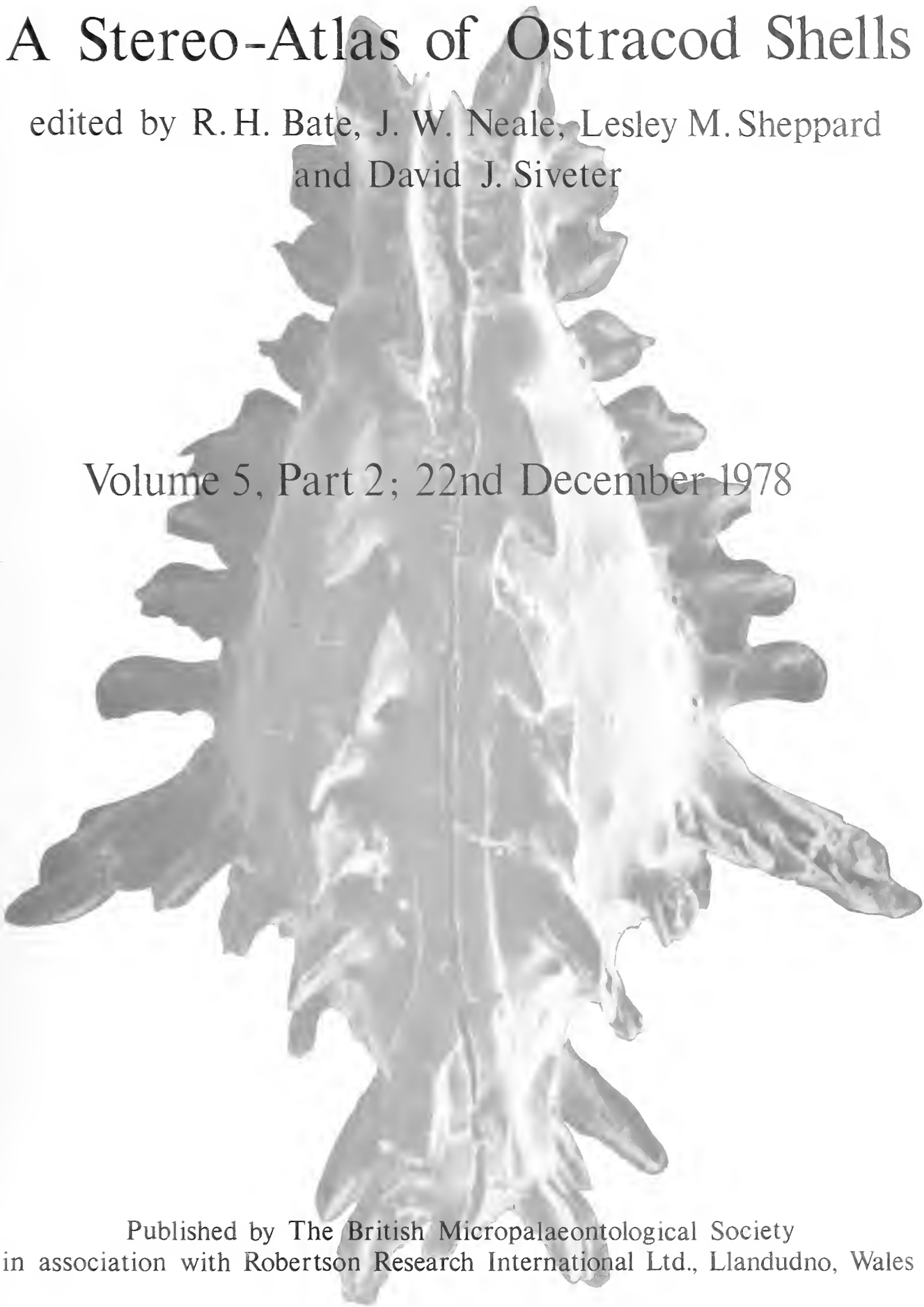
A Stereo-Atlas of Ostracod Shells

edited by R. H. Bate, J. W. Neale, Lesley M. Sheppard
and David J. Siveter



Volume 5, Part 2; 22nd December 1978

Published by The British Micropalaeontological Society
in association with Robertson Research International Ltd., Llandudno, Wales

Instructions to Authors

Contributions illustrated by scanning electron micrographs of Ostracoda in stereo-pairs are invited. Full instructions may be obtained on request from any one of the Editors or Editorial Board. Format should follow the style set by the majority of papers in this issue. Descriptive matter apart from illustrations should be cut to a minimum; preferably each plate should be accompanied by one page of text only. Blanks to aid in mounting figures for plates may be obtained from the Editors. Completed papers should be sent to Ms. L.M. Sheppard, Department of Palaeontology, British Museum (Natural History), Cromwell Road, London SW7 5BD.

Acknowledgments

This Volume of the *Stereo-Atlas* has been aided by generous financial support from Robertson Research International Limited.

Stereo-viewing for users of the Atlas

In order to obtain maximum information and benefit from the use of the *Stereo-Atlas* it is essential that the user view the micrographs stereoscopically. Small pocket-sized stereo-viewers are most suitable for this purpose. Two suppliers are:

C.F. Casella & Co. Ltd., Regent House, Britannia Walk, London N1 7ND, *and*
Air Photo Supply Corpn., 158 South Station, Yonkers, New York 10705. U.S.A.

The front cover shows a male carapace (dorsal view) of **Pterygocythereis jonesii** (Baird, 1850).

Plates printed by The Broadwater Press Ltd., Welwyn Garden City, Herts., England.

595.337.14 (116.222) (425.72:162.002.51) : 551.351 + 552.52

ON *LESLEYA BATHONICA* BATE gen. et sp. nov.

by Raymond H. Bate
(British Museum [Natural History], London)

Genus *LESLEYA* gen. nov.

Type species: *Lesleya bathonica* sp. nov.

Gender: Feminine.

Derivation of name: After Lesley Sheppard, my colleague working on Jurassic ostracods.

Diagnosis: Genus of Trachycytheridae having quadrate to rectangular outline in lateral view: dimorphic. Carapace compressed in dorsal view. Shell ornamented with ridges, small terminal nodes and distinct eye node. Hinge weakly entomodont. Radial pore canals straight, few in number. Inner margin and line of concrescence coincide. Muscle scars having four adductor scars, antero-ventral mandibular scar and large antero-dorsal frontal scar composed of single, large, elongate scar with smaller, anterior, subsidiary scar. Left valve slightly larger than right.

Explanation of Plate 5, 82

Fig. 1, ♀ LV, ext. lat. (holotype, **OS 10918**, 530 μm long); fig. 2, ♂ LV, ext. lat. (paratype, **OS 10919**, 580 μm long); fig. 3, juv. LV, ext. lat. (paratype, **OS 10922**, 490 μm long).
Scale A (100 μm; x 118), fig. 1; scale B (100 μm; x 103), fig. 2; scale C (100 μm; x 122), fig. 3.

Remarks: *Lesleya* bears some external resemblance to *Oligocythereis* Sylvester-Bradley and it is possible that, as in *Oligocythereis*, the frontal scar may be V-shaped in some individuals according to preservation. *Lesleya*, however, differs in lacking the external muscle scar node of the Trachyleberididae and by having simple, straight radial pore canals fewer in number than exists for *Oligocythereis*. For these reasons *Lesleya* cannot be placed in the Trachyleberididae and appears to fit naturally into the Trachycytheridae. *Lesleya* is presently monotypic, the type species: *L. bathonica* being restricted to the White Limestone/Forest Marble horizon of the Upper Bathonian.

Lesleya bathonica sp. nov.

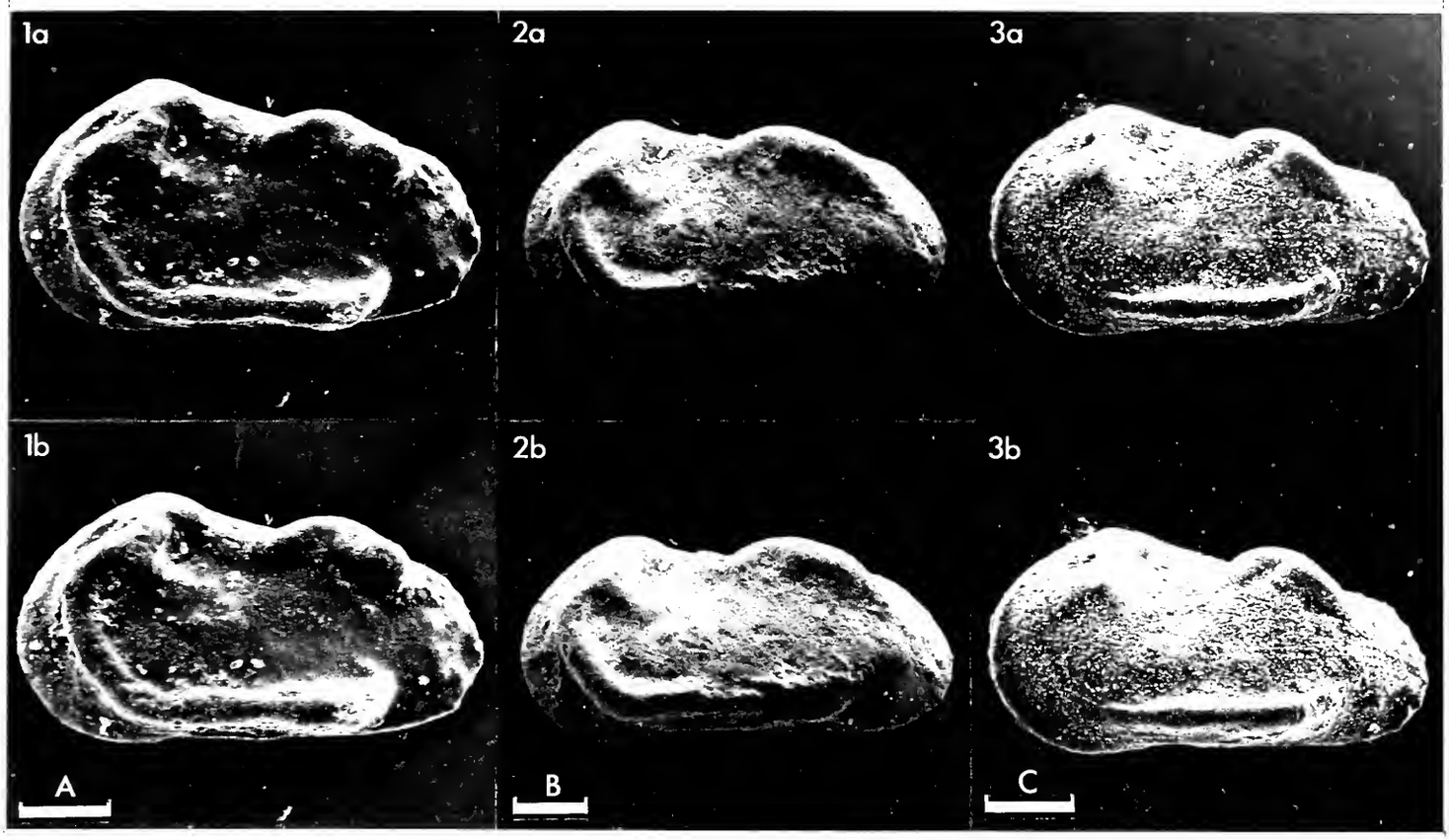
Holotype: Brit. Mus. (Nat. Hist.) **OS.10918**, ♀ L.V.
[Paratypes: Brit. Mus. (Nat. Hist.) **OS 10919 - 10940**].

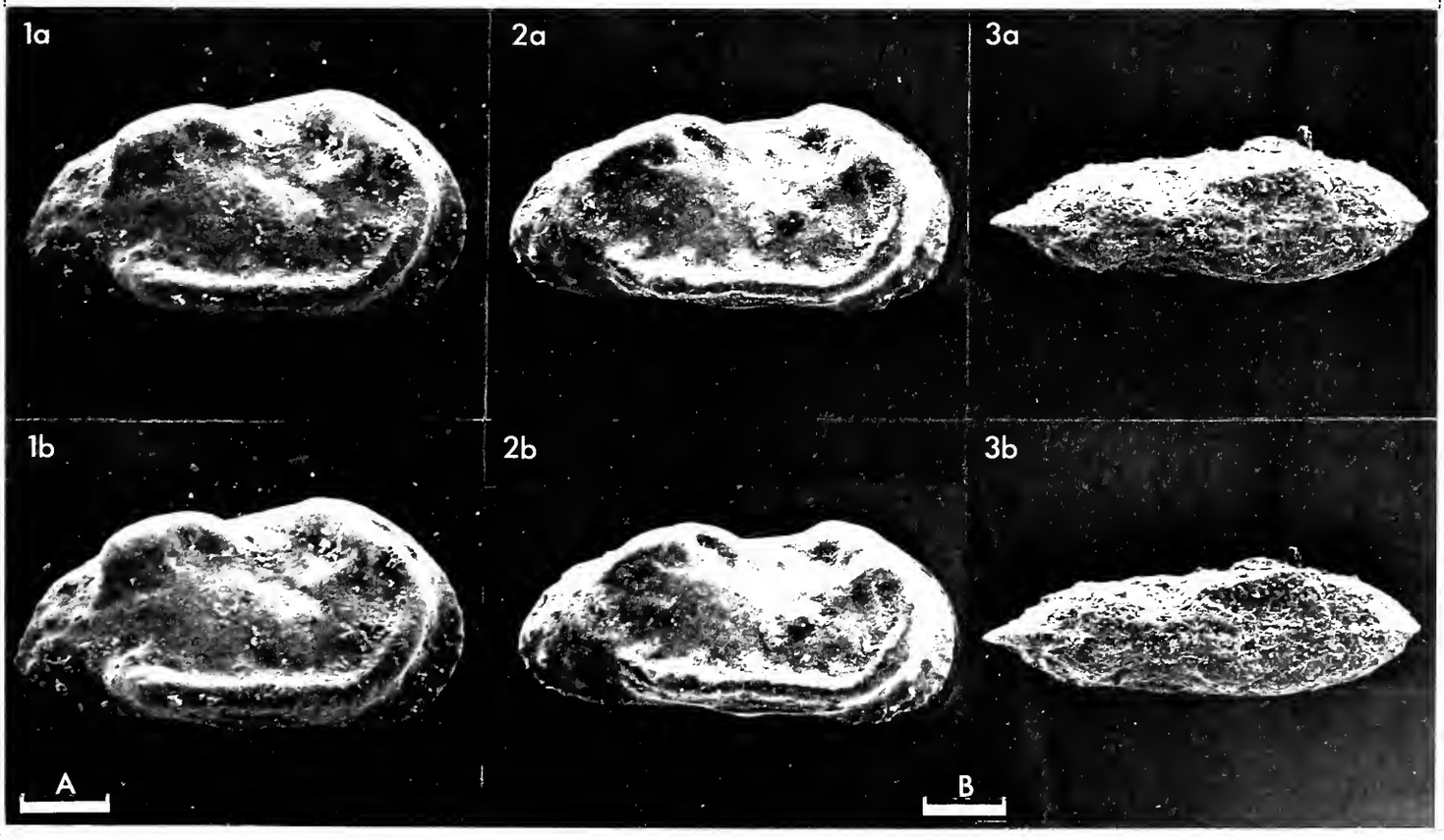
Type locality: Middle Jurassic, Upper Bathonian, ostracod Zone 6, Wychwood Beds, Forest Marble, Old Cement Quarry, Kirtlington, Oxfordshire, England. Grid Ref.:SP 49451985.

Figured specimens: Brit. Mus. (Nat. Hist.) **OS.10918** (holotype, ♀ LV: Pl. **5**, 82, fig. 1), **OS.10919** (♂ LV: Pl. **5**, 82, fig. 2), **OS.10920** (♀ RV: Pl. 5, 84, fig. 1; rad. pore can.: Text-fig. 1B), **OS.10921** (♂ RV: Pl. **5**, 84, fig. 2), **OS.10922** (juv. LV: Pl. 5, 82, fig. 3), **OS.10923** (♀ RV: Pl. **5**, 86, fig. 1; Pl. **5**, 88, fig. 4), **OS.10924** (♂ car.: Pl. **5**, 84, fig. 3), **OS.10925** (♀ LV: Pl. **5**, 86, fig. 1), **OS.10926** (♀ car.: Pl. **5**, 88, fig. 1), **OS.10927** (♀ RV: Pl. **5**, 88, fig. 2), **OS.10928** (♀ LV: Pl. **5**, 86, fig. 3), **OS.10929** (♂ LV: Pl. **5**, 88, fig. 3), **OS.10930** (♀ LV; musc. sc.: Text-fig. 1A).

Explanation of Plate 5, 84

Fig. 1, ♀ RV, ext. lat. (paratype, **OS 10920**, 510 μm long); fig. 2, ♂ RV, ext. lat. (paratype, **OS 10921**, 560 μm long); fig. 3, ♂ car. dors. (paratype, **OS 10924**, 540 μm long).
Scale A (100 μm; x 117), fig. 1; scale B (100 μm; x 110), figs. 2, 3.


1a
2a
3a
1b
2b
3b
A
B
C


1a
2a
3a
1b
2b
3b
A
B

Diagnosis: Carapace small, dimorphic; strikingly ornamented with prominent anterior ridge that runs, in adults, from eye node, round anterior margin, to extend back along ventro-lateral margin; juveniles often have incomplete anterior ridge; short, curved, postero-dorsal ridge projects above dorsal margin. Shell surface smooth, small nodes sometimes present at anterior and posterior ends. Approximately seven anterior radial pore canals. Muscle scars as for genus. Normal pore canals simple. Left valve overlaps right along ventral margin.

Remarks: *Lesleya bathonica* is a small but striking ostracod that is restricted to the Upper Bathonian (Range: top of White Limestone to Wychwood Beds of the Forest Marble) of the Oxfordshire Area. Ecologically the species appears to inhabit those levels of the Upper Bathonian that were deposited in shallow water, close to land and where fresh-water ostracods are associated (washed-in?) with a more marine fauna. It is possible, therefore, that conditions of deposition were not fully marine and could have been brackish. Interestingly the three localities from which *Lesleya bathonica* has been recorded; Croughton, Kirtlington and Milton-under-Wychwood all lie on a NE-SW line that was probably close to the old Jurassic shoreline.

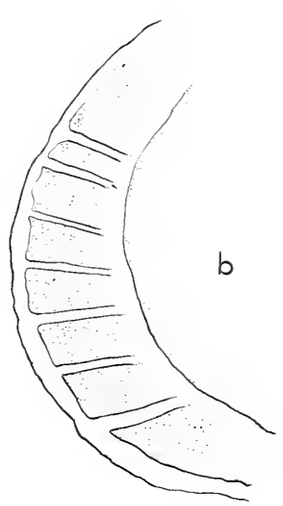
Explanation of Plate 5, 86

Fig. 1, ♀ RV. int. lat. (paratype, **OS 10923**, 520 μm long); fig. 2, ♀ LV. int. lat. (paratype, **OS 10925**, 500 μm long); fig. 3, ♂ LV, ext. lat. (paratype, **OS 10928**, 570 μm long).
Scale A (100 μm; x 115), fig. 1; scale B (100 μm; x 120), fig. 2; scale C (100 μm; x 105), fig. 3.

Text-fig. 1

Muscle scars, paratype **OS 10930**, female left valve, length 490 μm. White Limestone, Croughton, Oxfordshire.

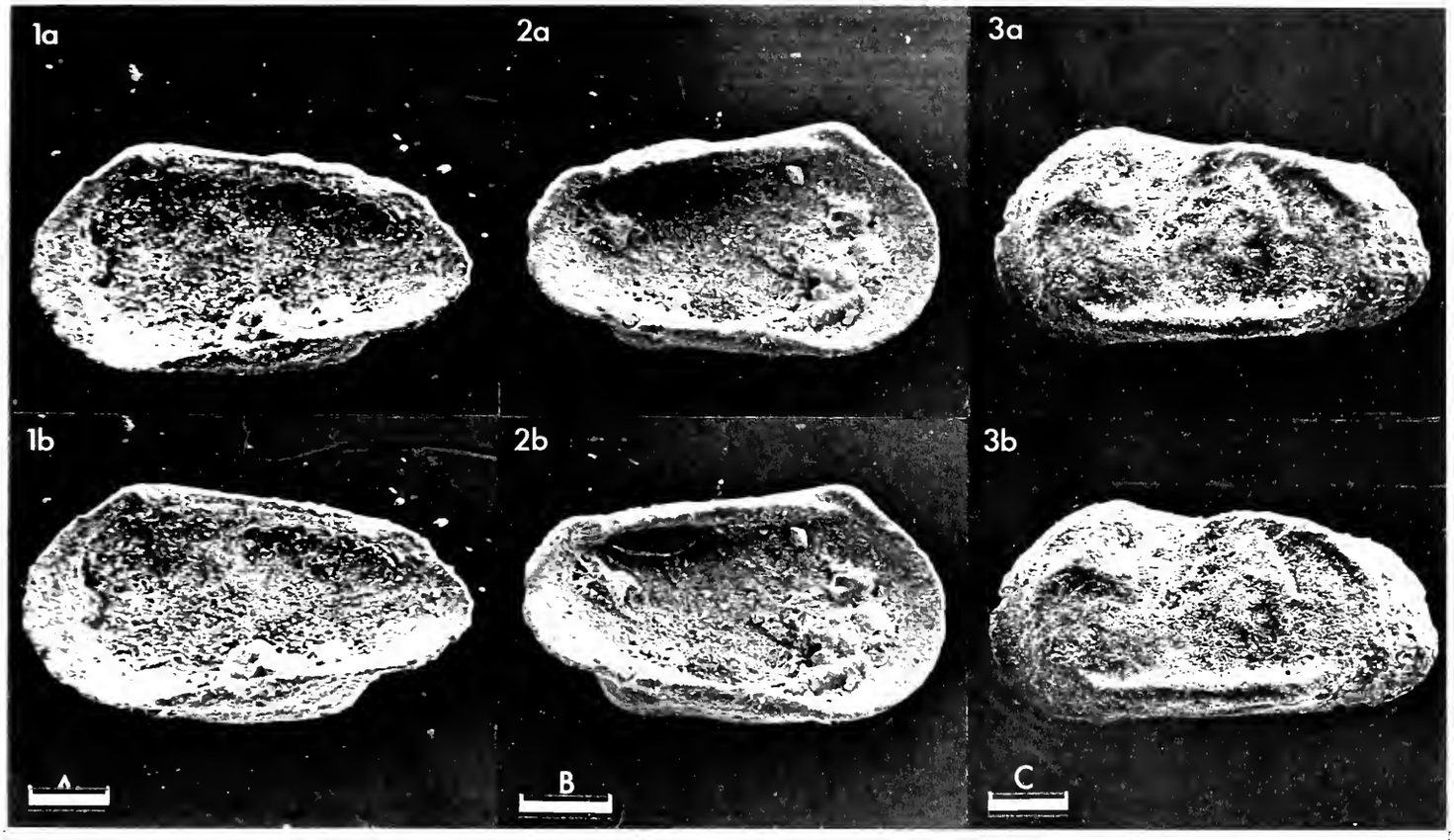
62.5 μm

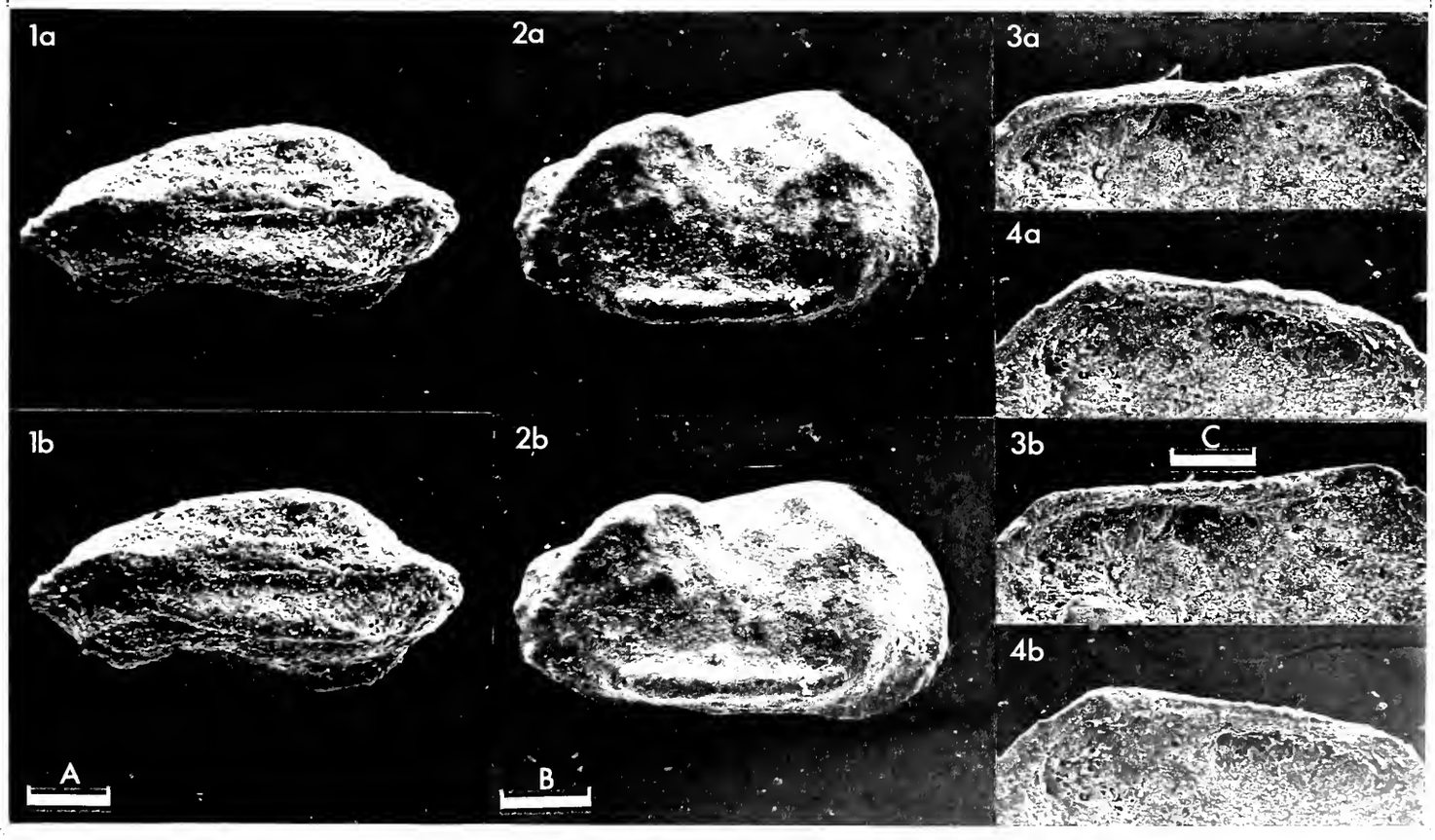


Anterior radial pore canals, paratype **OS 10920**, female right valve, length 510 μm. Forest Marble, Kirtlington, Oxfordshire.

Explanation of Plate 5, 88

Fig. 1, ♀ car. vent. (paratype, **OS 10926**, 544 μm long); fig. 2, ♀ RV, ext. lat. (paratype, **OS 10927**, 493 μm long); fig. 3, ♂ LV, hinge (paratype, **OS 10929**); fig. 4, ♀ RV, hinge (paratype, **OS 10923**).
Scale A (100 μm; x 110), fig. 1; scale B (100 μm; x 120), fig. 2; scale C (100 μm; x 115), figs. 3, 4.


1a
2a
3a
1b
2b
3b
A
B
C


1a
2a
3a
4a
1b
2b
3b
C
4b
A
B

595.337.14 (116.222) (423.8 : 162.003.51) : 551.351 + 552.52

ON *MICROPNEUMATOCYTHERE BRENDAE* SHEPPARD sp. nov.

by Lesley M. Sheppard
(British Museum [Natural History], London)

Micropneumatocythere brendae sp. nov.

1978 *Micropneumatocythere* sp. A; R.H. Bate, *in: A stratigraphical Index of British Ostracoda,* Seel House Press, Liverpool, 234, pl. 5, figs. 8 - 10, 15, 16.

Holotype: Inst. Geol. Sci. **MPK 2168**, ♀ LV.
[Paratypes: Inst. Geol. Sci. **MPK 2169 - 2181**].

Type locality: Upper Fuller's Earth, Bathonian; Swainswick Borehole, depth 23.00 - 24.90m, Somerset, England. Grid Ref.: ST 75766907.

Derivation of name: After Brenda Coleman of the Institute of Geological Sciences.

Explanation of Plate 5, 90

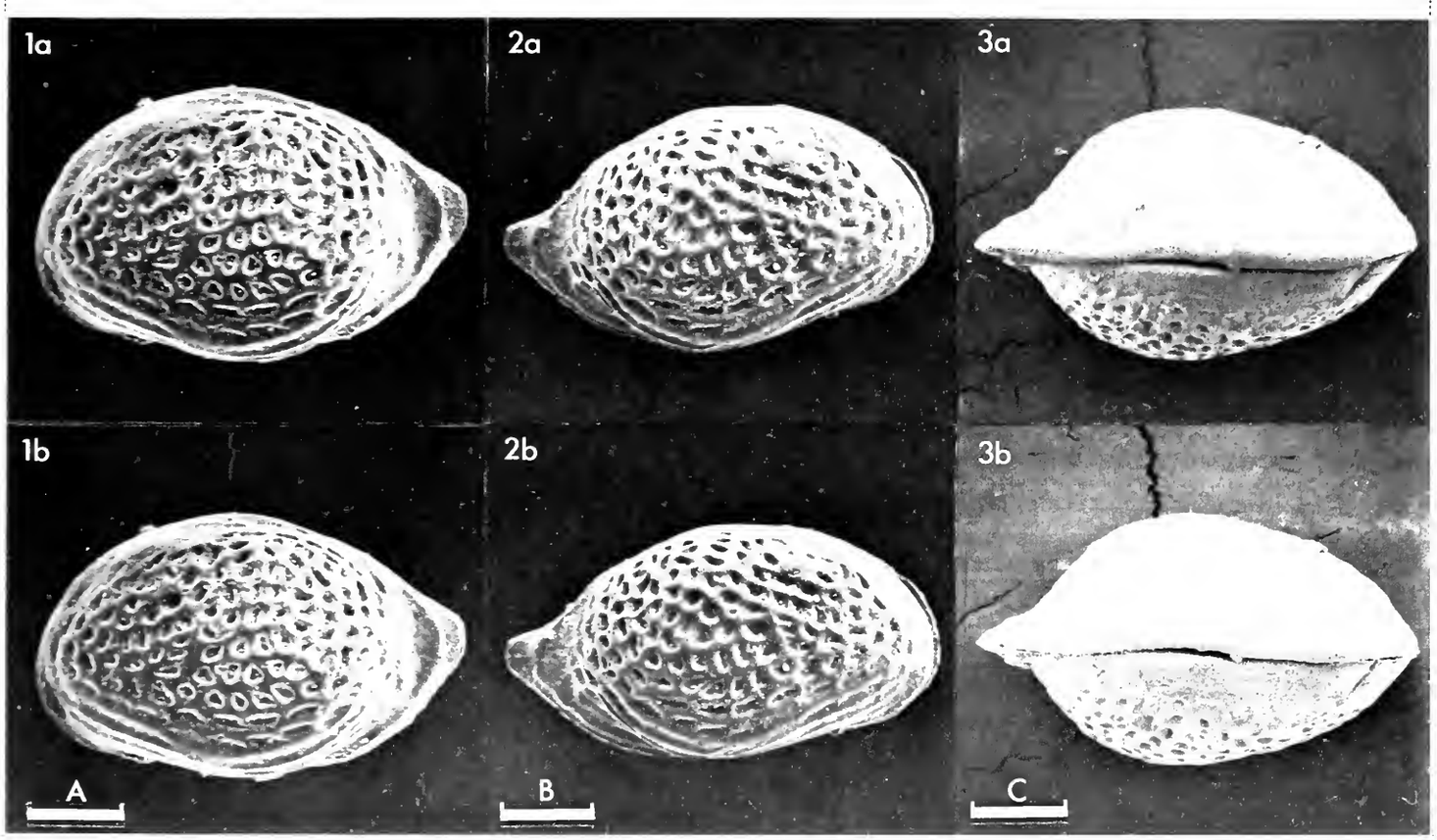
Fig. 1, ♀ LV, ext. lat. (holotype, **MPK 2168**, 459 μm long); fig. 2, ♀ RV, ext. lat. (paratype, **MPK 2170**, 480 μm long); fig. 3, ♀ car., ext. dors. (paratype, **MPK 2173**, 460 μm long).
Scale A (100 μm; x 130), fig. 1; scale B (100 μm; x 125), fig. 2, scale C (100 μm; x 130), fig. 3.

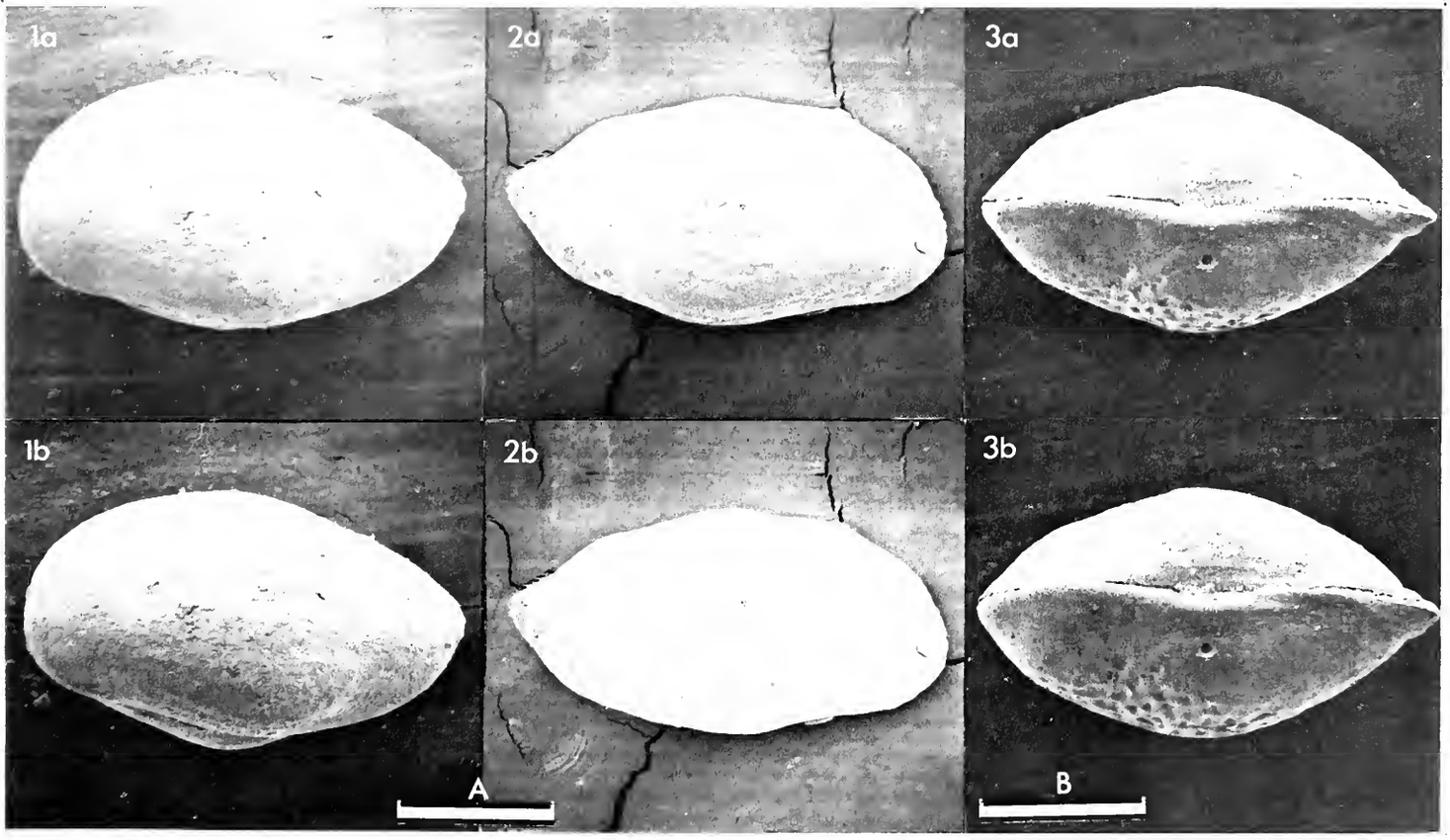
Figured specimens: Inst. Geol. Sci. nos. **MPK 2168** (holotype, ♀ LV: Pl. **5**, 90, fig. 1; Pl. **5**, 94, fig. 3), **MPK 2170** (♀ RV: Pl. **5**, 90, fig. 2; Pl. **5**, 94, fig. 2), **MPK 2171** (♀ LV: Pl. **5**, 96, fig. 1), **MPK 2173** (♀ car.: Pl. **5**, 90, fig. 3), **MPK 2174** (♀ car.: Pl. **5**, 96, fig. 2), **MPK 2175** (♀ LV: Pl. **5**, 96, fig. 3), **MPK 2177** (♂ car.: Pl. **5**, 92, fig. 3), **MPK 2178** (♂ RV: Pl. **5**, 92, fig. 2), **MPK 2179** (♂ car.: Pl. **5**, 92, fig. 1), **MPK 2181** (♂ RV: Pl. **5**, 94, fig. 4). Brit. Mus. (Nat. Hist.) no. **OS 9056** (♀ LV: Pl. **5**, 94, fig. 1; Text-fig. 1a). **MPK 2168, MPK 2170, MPK 2177** are from the same depth at the type locality; **MPK 2178, MPK 2179** are from depth 15.28 - 18.05m; **MPK 2170, MPK 2173** are from depth 45.54 - 47.00m, Frome Borehole, Somerset, England, Grid Ref.: ST 76324769. **MPK 2174** is from depth 25.90 - 26.20m, and **MPK 2175** and **MPK 2181** are from depth 21.40 - 21.70m, Horsecombe Vale Borehole 15, Somerset, England, Grid Ref.: ST 755622. **OS 9056** is from depth 15.00m, Lyme Bay Borehole 74/35, off Dorset, England, approx. lat. 50° 37.09'N, long. 2° 43.05'W. All specimens are Upper Fuller's Earth, Bathonian in age. Also figured is one specimen of *M. falcata* Sheppard, Brit. Mus. (Nat. Hist.) no. **OS 10941** (♀ LV: Text-fig. 1b), White Limestone, Bathonian, Croughton Quarry, Oxfordshire, England.

Diagnosis: Ornate species of *Micropneumatocythere,* ornamentation comprising 3 or 4 – sided pits, resembling reticulation. Dorsal margin highly arched with steep posterodorsal slope. Carapace strongly convex with well developed caudal process in both male and female.

Explanation of Plate 5, 92

Fig. 1, ♂ car., ext. lt. lat. (paratype, **MPK 2179**, 560 μm long); fig. 2, ♂ RV, ext. lat. (paratype, **MPK 2178**, 560 μm long); fig. 3, ♂ car., ext. dors. (paratype, **MPK 2177**, 527 μm long).
Scale A (200 μm; x 214), figs. 1, 2; scale B (200 μm; x 226), fig. 3.


1a
2a
3a
1b
2b
3b
A
B
C

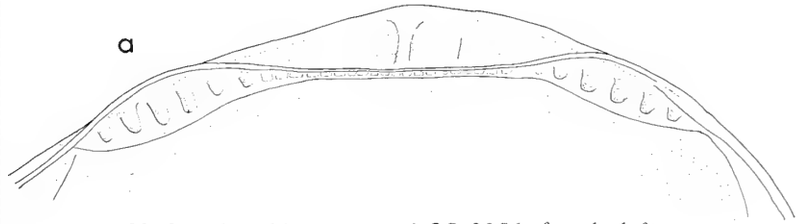

1a
2a
3a
1b
2b
3b
A
B

Remarks: This is the most highly ornate of all species of *Micropneumatocythere* and is important stratigraphically as it is used as the index species of ostracod zone 4 in the current zonation of the British Bathonian (see Bate 1978). Smooth forms do, however, occur in which the ornament is totally lacking (compare Pl. **5**, 90 fig. 1 with Pl. **5**, 96, fig. 1) and these very closely resemble *M. falcata* into which they probably evolved (*Stereo-Atlas of Ostracod Shells* 1978, **5** (14) 97 - 100). The two species may be distinguished in two ways:
(1) on dorsal outline; *M. brendae* is more strongly arched dorsally and has a much steeper posterodorsal slope.
(2) within the accommodation groove of the left valve of *M. brendae* can be seen one prominent centrally situated vertical ridge and one or two smaller, less well defined, ridges on either side (see Text-fig. 1a). These structures are not found in *M. falcata* (see Text-fig. 1b), nor indeed in any other species of the genus. I suggest that they served as an additional reinforcement of the hinge restricting movement of the valves when closed. Complimentary depressions in the dorsal edge of the right valve have not as yet been observed, however, due mainly to poor preservation of this part of the shell. The ridges may have developed as a result of inhabiting the high energy inner-shelf, near-shore environment that was in existence during Upper Fuller's Earth times. The coarse ornamentation would support this idea. Evolution to *M. falcata* would have been achieved with the smooth forms of *M. brendae* as an intermediate stage, and was accompanied by a change in environment to a much quieter shallow-water habitat. Correspondingly the carapace ornament was lost, so too were the ridges within the accommodation groove.

Explanation of Plate 5, 94

Fig. 1, ♀ LV, int. lat. hinge (**OS 9056**); fig. 2, ♀ RV, int. lat. hinge (paratype, **MPK 2170**); fig. 3, ♀ LV, ext. lat. ornament (holotype, **MPK 2168**); fig. 4, ♂ RV int. lat. musc. sc. (paratype, **MPK 2181**).
Scale A (100 μm; x 280), fig. 1; scale B (100 μm; x 318), fig. 2; scale C (50 μm; x 326), fig. 3; scale D (10 μm; x 847), fig. 4.

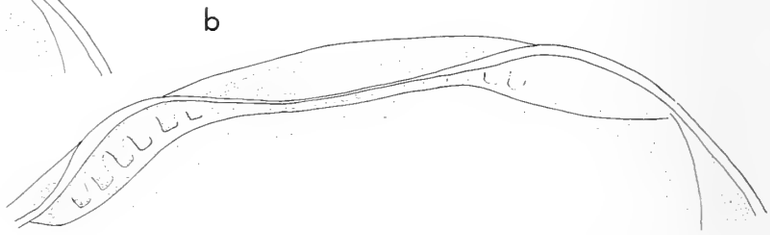
Distribution: A marine species, common in the Upper Fuller's Earth sequence in SW England at those localities already listed, and also one occurrence in the Upper Estuarine Series at Norwich, Norfolk, England. This latter occurence is useful in correlating the marine sequence in the south with the more brackish beds further north. *M. brendae*, first appearing at the base of ostracod zone 4 of Bate, ranges from *hodsoni* to *aspidoides* ammonite zones.



M. brendae, hinge area of **OS 9056**, female left valve, showing vertical ridges within accommodation groove, and highly arched dorsal outline.

62.5 μm

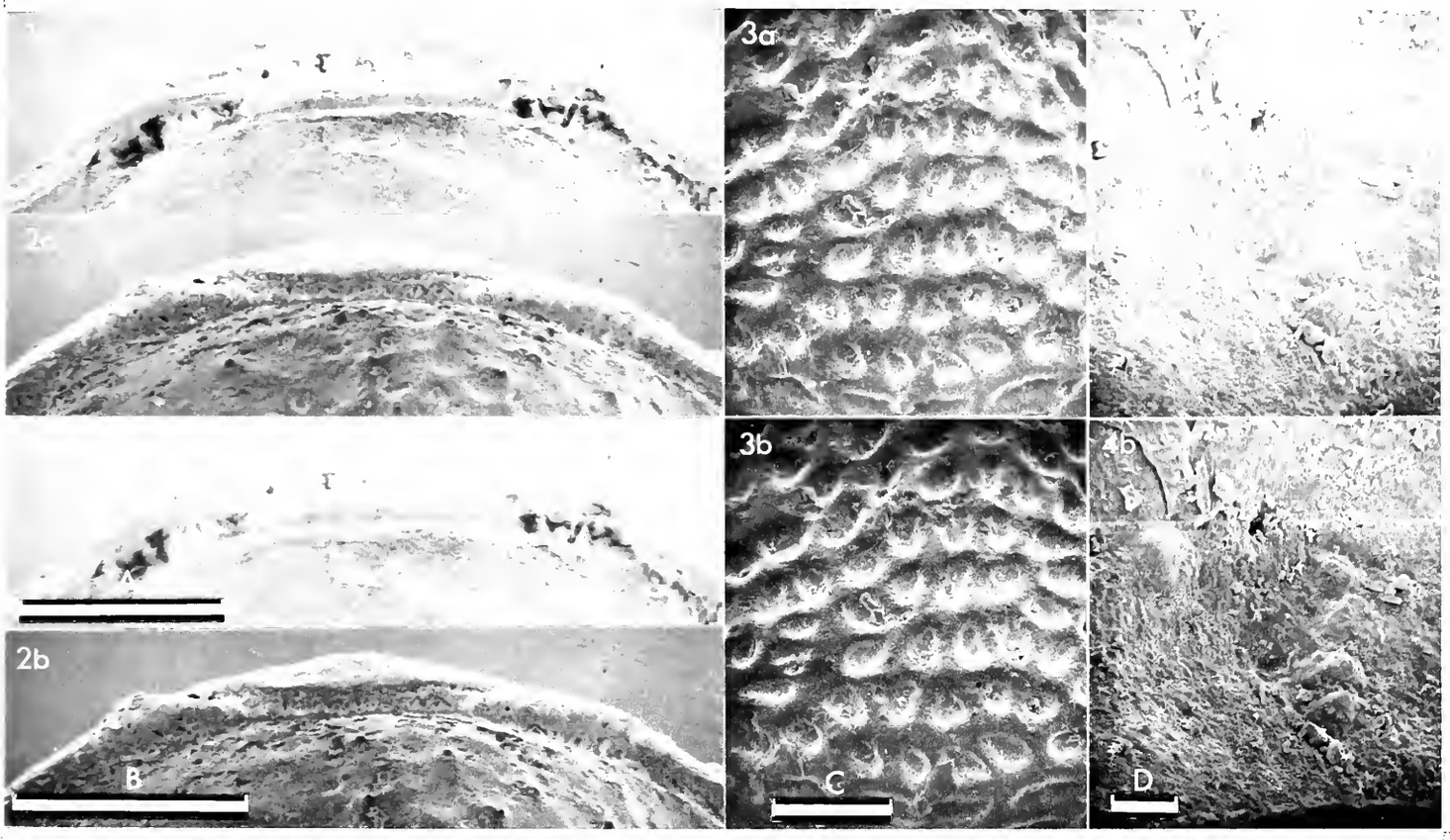
Text-fig. 1

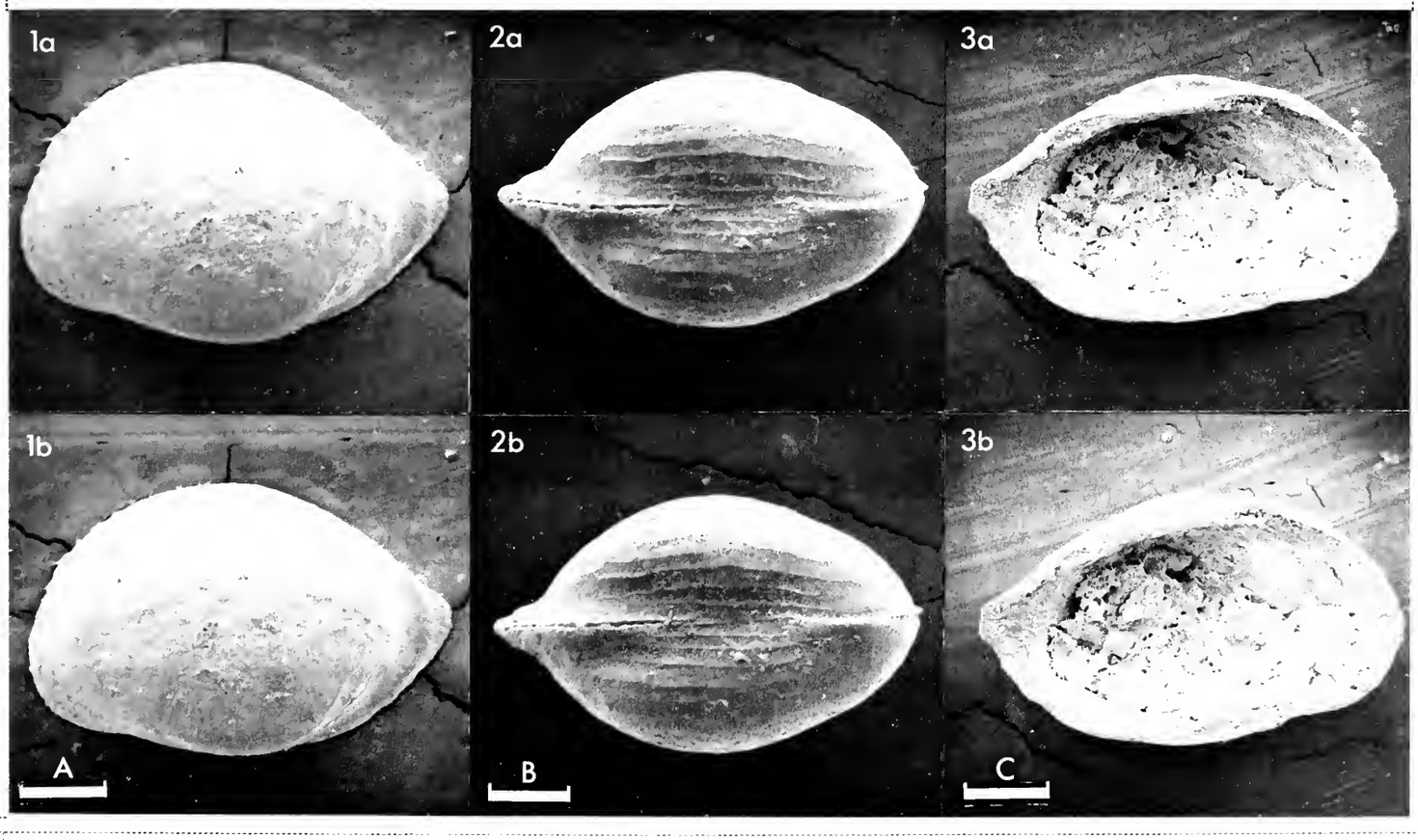


M. falcata, hinge area of **OS 10941**, female left valve.

Explanation of Plate 5, 96

Fig. 1, ♀ LV, ext. lat. (paratype, **MPK 2171**, 501 μm long); fig. 2, ♀ car., ext. vent. (paratype, **MPK 2174**, 490 μm long); fig. 3, ♀ LV, int. lat. (paratype, **MPK 2175**, 518 μm long).
Scale A (100 μm; x 119), fig. 1; scale B (100 μm; x 112), fig. 2; scale C (100 μm; x 115), fig. 3.


2a
2b
B
3a
3b
C
4b
D


1a
2a
3a
1b
2b
3b
A
B
C

595.337.14 (116.222) (422.3 : 162.003.50 + 423.3 : 161.001.51 + 425.72 : 162.002.51) : 551.351 + 552.52

ON *MICROPNEUMATOCYTHERE FALCATA* SHEPPARD sp. nov.

by Lesley M. Sheppard
(British Museum [Natural History], London)

Micropneumatocythere falcata sp. nov.

1978 *Micropneumatocythere* sp. E; R.H. Bate, *in: A Stratigraphical Index of British Ostracoda,* Seel House Press, Liverpool, 234 (not Pl. 5, figs. 11 - 14).

Holotype: Brit. Mus. (Nat. Hist.) **OS 9305**, ♀ RV.
[Paratypes: Brit. Mus. (Nat. Hist.) **OS 9306 - 9314**]

Type locality: Forest Marble, Upper Bathonian, Kirtlington Quarry, Oxfordshire, England, Grid Ref.: SP 494198.

Derivation of name: Latin, *falcatus*, meaning sickle-shaped, referring to the dorsal margin.

Figured specimens: Brit. Mus. (Nat. Hist.) nos. **OS 9305** (holotype, ♀ RV: Pl. 5, 98, fig. 1), **OS 9306** (♀ LV: Pl. 5, 98, fig. 2), **OS 9308** (♀ RV: Pl. 5, 98, fig. 3), **OS 9311** (♂ LV: Pl. 5, 100, fig. 2), **OS 9312** (♂ car.: Pl. 5, 100, fig. 3), **OS 9313** (♂ car.: Pl. 5, 100, fig. 1). **OS 9305**, **OS 9306**, **OS 9312** and **OS 9313** are from the type level and locality. **OS 9308** is from the top of the White Limestone, Croughton Quarry, Oxfordshire. Grid Ref.: SP 602255. **OS 9311** is from the Forest Marble, Shipton-on-Cherwell, Oxfordshire. Grid Ref.: SP 475175.

Explanation of Plate 5, 98

Fig. 1, ♀ RV, ext. lat. (holotype, **OS 9305**, 493, μm long); fig. 2, ♀ LV, ext. lat. (paratype, **OS 9306**, 476 μm long); fig. 3, ♀ RV, int. lat. (paratype, **OS 9308**, 476 μm long).
Scale A (100 μm; x 121), fig. 1; scale B (100 μm; x 126), figs. 2, 3.

Diagnosis: Species of *Micropenumatocythere* with sickle-shaped dorsal outline in female dimorph; anterior broadly rounded, posterior triangular. Shell surface smooth with large, widely-spaced normal pore canals.

Remarks: Hinge, muscle scars and radial pore canals as for genus. There are several (at least 6) parallel ridges running along the ventral and ventrolateral surfaces.

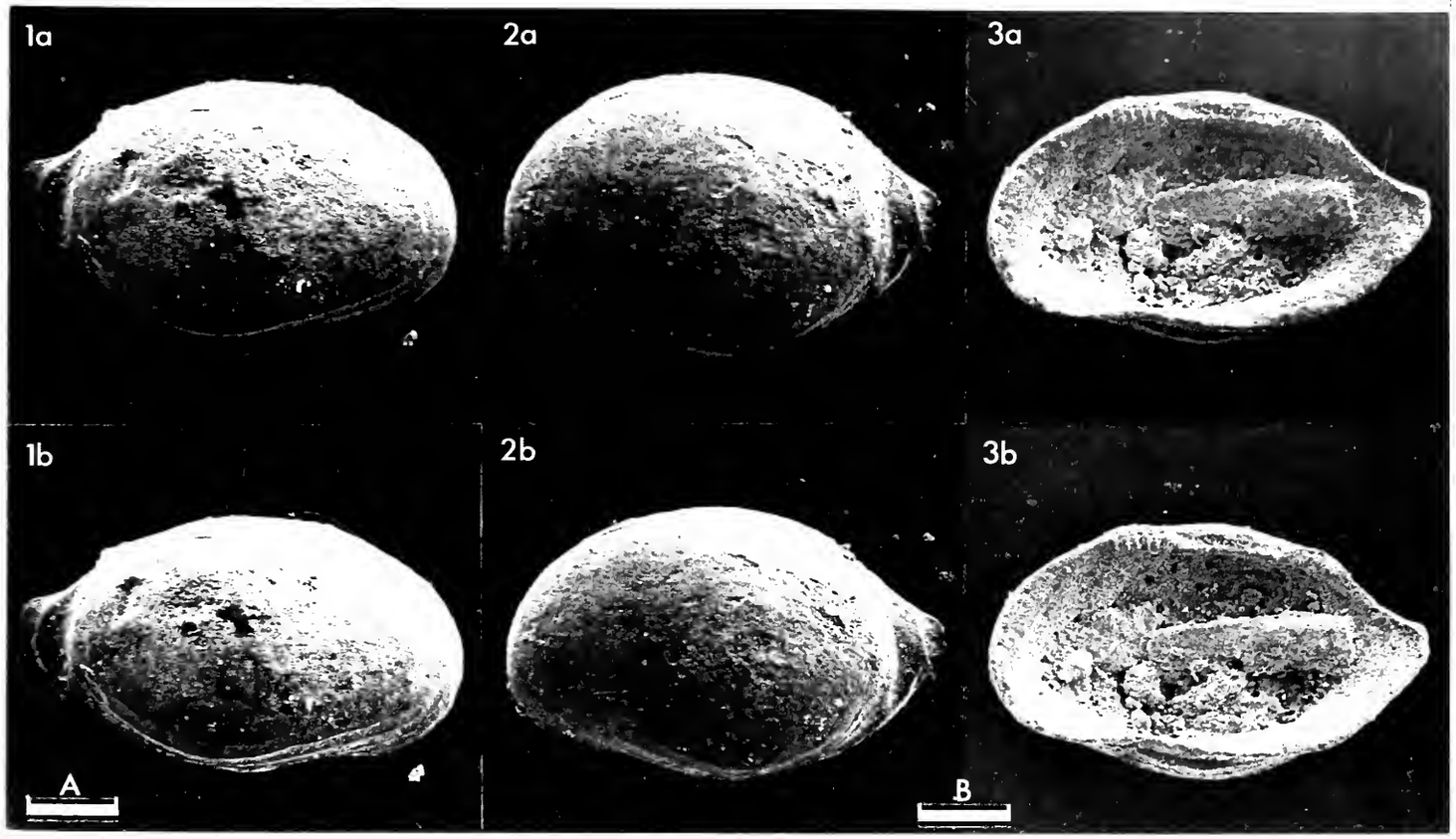
M. falcata is important stratigraphically as its first appearance is used to identify the base of ostracod zone 6 in the current zonation of the British Bathonian (see Bate 1978). It is considered to have evolved from smooth forms of *M. brendae* Sheppard which occur at the top of zone 5; indeed an excellent phylogenetic lineage can be traced from *M. brendae* to *M. falcata*: for details see *Stereo-Atlas of Ostracod Shells* 1978, **5** (13) 89 - 96.

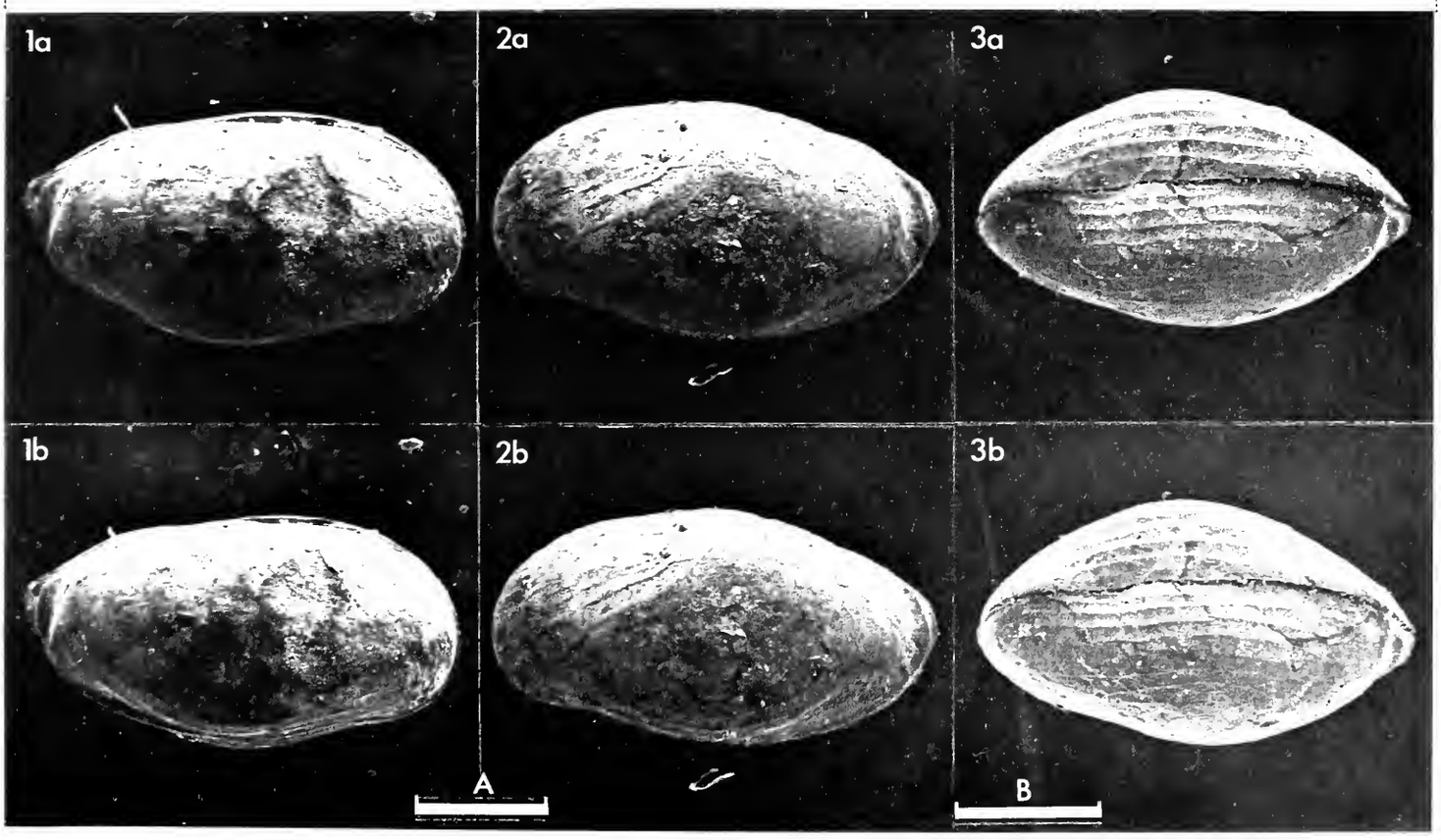
M. falcata is considered a marine to brackish-water species, sedimentological and macrofossil evidence suggesting it favoured a shallow water environment.

Distribution: *M. falcata* has been found to range from the top of the White Limestone and throughout the Forest Marble (*discus* ammonite zone) in the Oxfordshire, Kent and Dorset areas of S England only.

Explanation of Plate 5, 100

Fig. 1, ♂ car., ext. rt. lat. (paratype, **OS 9313**, 680 μm long); fig. 2, ♂ LV, ext. lat. (paratype, **OS 9311**, 654 μm long); fig. 3, ♂ car., ext. vent. (paratype, **OS 9312**, 591 μm long).
Scale A (200 μm; x 90), figs. 1, 2; scale B (200 μm; x 100), fig. 3.


1a
2a
3a
1b
2b
3b
A
B


1a
2a
3a
1b
2b
3b
A
B

Stereo-Atlas of Ostracod Shells 5 (15) 101 - 104 (**1978**)
595.337.14 (116.312) (427.4 : 162.001.54) : 551.351 + 552.52

ON *APATOCYTHERE SPINOSA* NEALE

by John W. Neale
(University of Hull, England)

Apatocythere spinosa Neale, 1962

1962 *Apatocythere spinosa* sp. nov. J.W. Neale, *Micropaleontology* 8 (4), 441, pl. 5, figs. 3, 9, pl. 6, fig. 5, pl. 13, figs. 1 - 4 21 - 22.
1966 *Apatocythere (Apatocythere) spinosa* Neale 1962; J. Gründel, *Freiberger ForschHft., ser.* C, **200**, 20, pl. 3, fig. 4, text-figs. 3a, b (q.v. for synonymy of forms earlier placed elsewhere but which may belong here).

Holotype: University of Hull coll. **HU.1.C.22.10**, ♀ LV.

Type locality: Coastal Section, Bed D2D, 1ft above the base, Speeton Clay, Speeton, E Yorkshire, England; lat. 54° 10'N, long. 0° 14'40"W. *Lyticoceras amblygonium* Zone, Lower Hauterivian, Lower Cretaceous.

Figured specimens: University of Hull coll. nos. **HU.13.C.4.69** (♀ LV: Pl. **5**, 102, fig. 1), **HU. 13.C.4.41** (♂ LV: Pl. **5**, 102, fig. 2) **HU.13.C.4.31** (♀ RV: Pl. **5**, 104, fig. 1), **HU.13.C.4.42** (♂ RV: Pl. **5**, 104, fig. 2). All the figured specimens from the type locality and type horizon.

Explanation of Plate 5, 102

Fig. 1, ♀ LV, ext. lat. (paratype, **HU.13.C.4.69**, 664 μm long); fig. 2, ♂ LV, ext. lat. (paratype, **HU.13.C.4.41**, 792 μm long). Scale A (100 μm; x 133), fig. 1; scale B (100 μm; x 117), fig. 2.

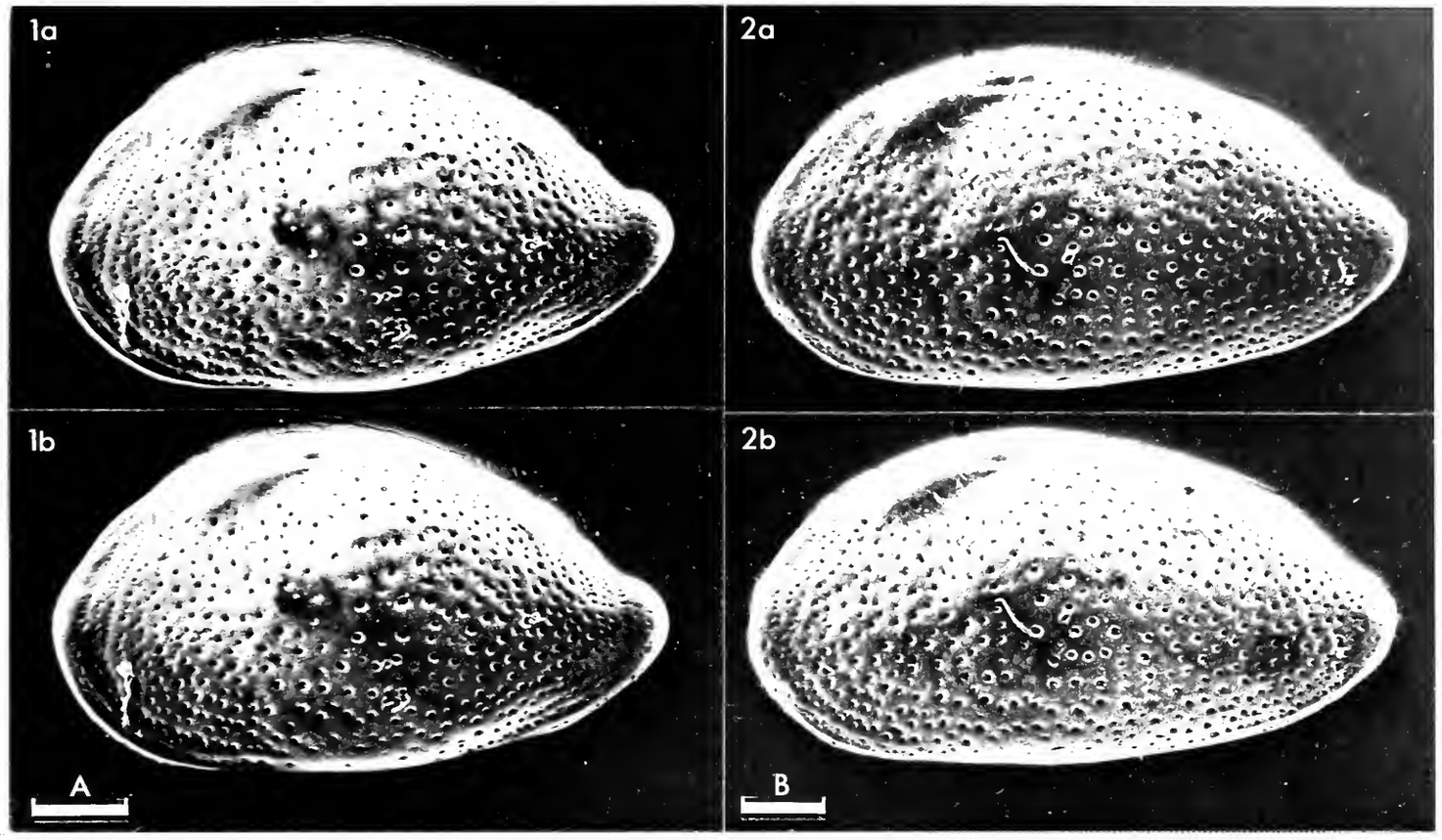
Diagnosis: Smoothly ovate in lateral outline with concave postero-dorsal margin and rounded, upturned posterior point. Anterior and posteroventral margins with small spines, best seen on the right valve where they affect the lateral outline; in the left valve they occur on the inner edge of the flange where they project inwards rather than laterally. Hinge (Pl. **5**, 104, fig. 2) typical of the genus. There is a well developed eye tubercle and strong sexual dimorphism.

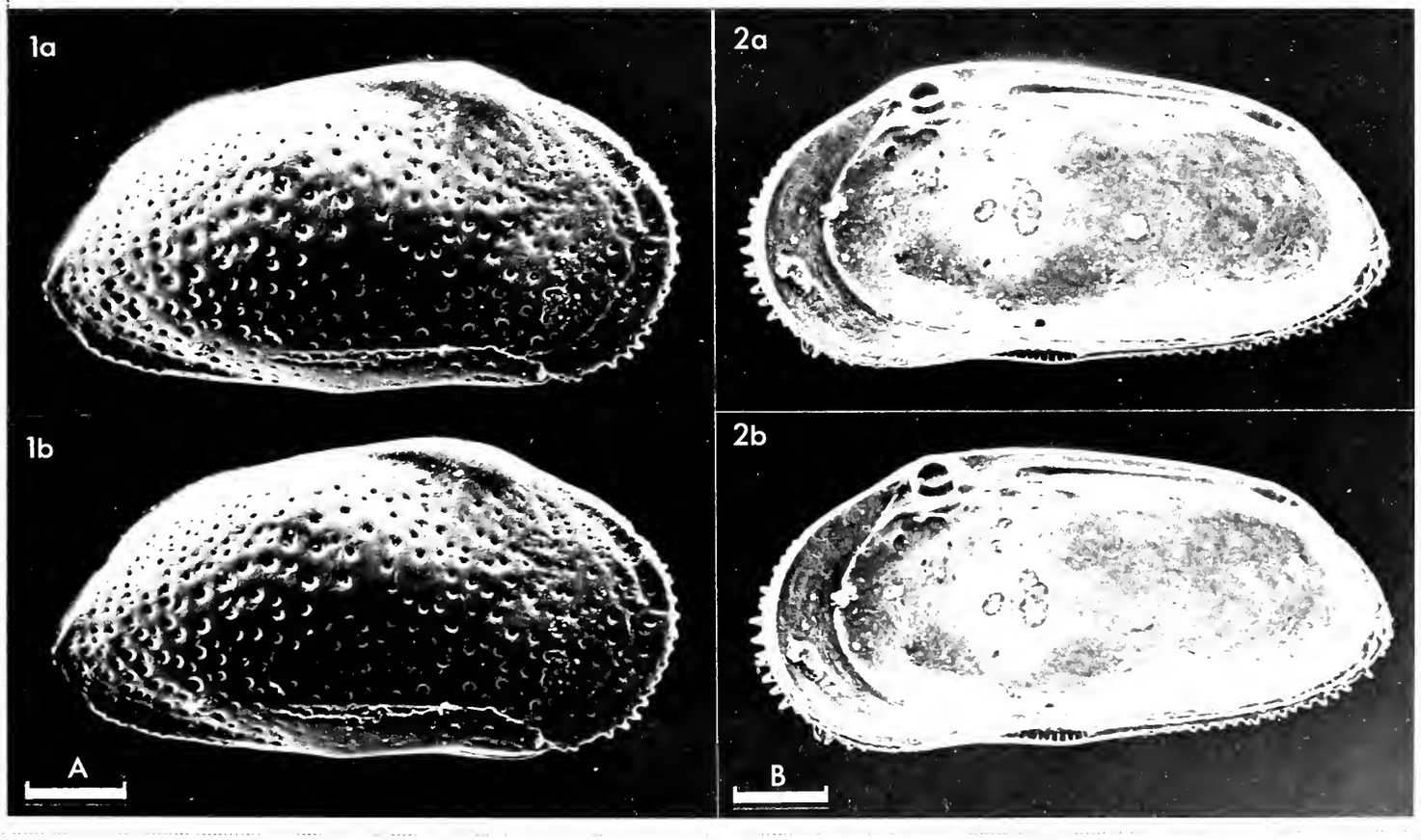
Remarks: The external morphology of this species is similar to *Schuleridea lamplughi* Neale, 1962 (op. cit.) which occurs in the same beds and which may be regarded as a homoeomorph (see *Stereo-Atlas of Ostracod Shells* **5** (16) 105, 1978). It differs in the hinge structure and in the prescence of small marginal spines. *Apatocythere simulans* Triebel, 1940 (Senckenbergiana), from the German Barremian, is most easily differentiated by the shape of the posterior part of the left valve in lateral view.

Distribution: This is a typical Lower Hauterivian species. It occurs in England in fine-grained, marine sediments rich in pyrite, glauconite and phosphatic material and is also known from East (and probably West) Germany. In both England and Germany it is associated with such well known species as *Cytherelloidea ovata* Weber, *Acrocythere hauteriviana* (Bartenstein), *Paranotacythere diglypta* (Triebel), *Protocythere hechti* Triebel, *P. triplicata* (Roemer) and *Schuleridea lamplughi* Neale.

Explanation of Plate 5, 104

Fig. 1, ♀ RV, ext. lat. (paratype, **HU.13.C.4.31**, 656 μm long); fig. 2, ♂ RV, int. lat. (paratype, **HU.13.C.4.42**, 708 μm long). Scale A (100 μm; x 139), fig. 1; scale B (100 μm; x 131), fig. 2.


1a
2a
1b
2b
A
B


1a
2a
1b
2b
A
B

595.337.14 (116.312) (427.4 : 162.001.54) : 551.351 + 552.52

ON *SCHULERIDEA LAMPLUGHI* NEALE

by John W. Neale
(University of Hull, England)

Schuleridea lamplughi Neale, 1962

1962 *Schuleridea lamplughi* sp. nov. J.W. Neale, *Micropaleontology* 8 (4), 441, pl. 5, figs. 6, 15, pl. 6, fig. 6, pl. 13, figs. 5 –8, 23.
1971 *Schuleridea lamplughi* Neale; E. Kemper, *Bull. Centre Rech. Pau - SNPA* 5 *suppl.*, 640 (not figured).

Holotype: University of Hull coll. **HU.1.C.22.15**, ♀ LV.

Type locality: Coastal Section, D2D Bed, 1' above the base, Speeton Clay, Speeton, E Yorkshire, England; lat. 54° 10'N, long. 0° 14'40"W. *Lyticoceras amblygonium* Zone, Lower Hauterivian, Lower Cretaceous.

Figured specimens: University of Hull coll. nos. **HU.13.C.3.66** (♂ LV: Pl. **5**, 106, fig. 1), **HU.1.C.22.15** (♀ LV: Pl. **5**, 106, fig. 2), **HU.13.C.3.11** (♂ RV: Pl. **5**, 108, fig. 1), **HU.13.C.3.65** (♀ LV: Pl. **5**, 108, fig. 2). All the figured specimens from the type locality and type horizon.

Explanation of Plate 5, 106

Fig. 1, ♂ LV, ext. lat. (paratype, **HU.13.C.3.66**, 780 μm long); fig. 2, ♀ LV, ext. lat. (holotype, **HU.1.C.22.15**, 728 μm long). Scale A (100 μm; x 126), fig. 1; scale B (100 μm; x 109), fig. 2.

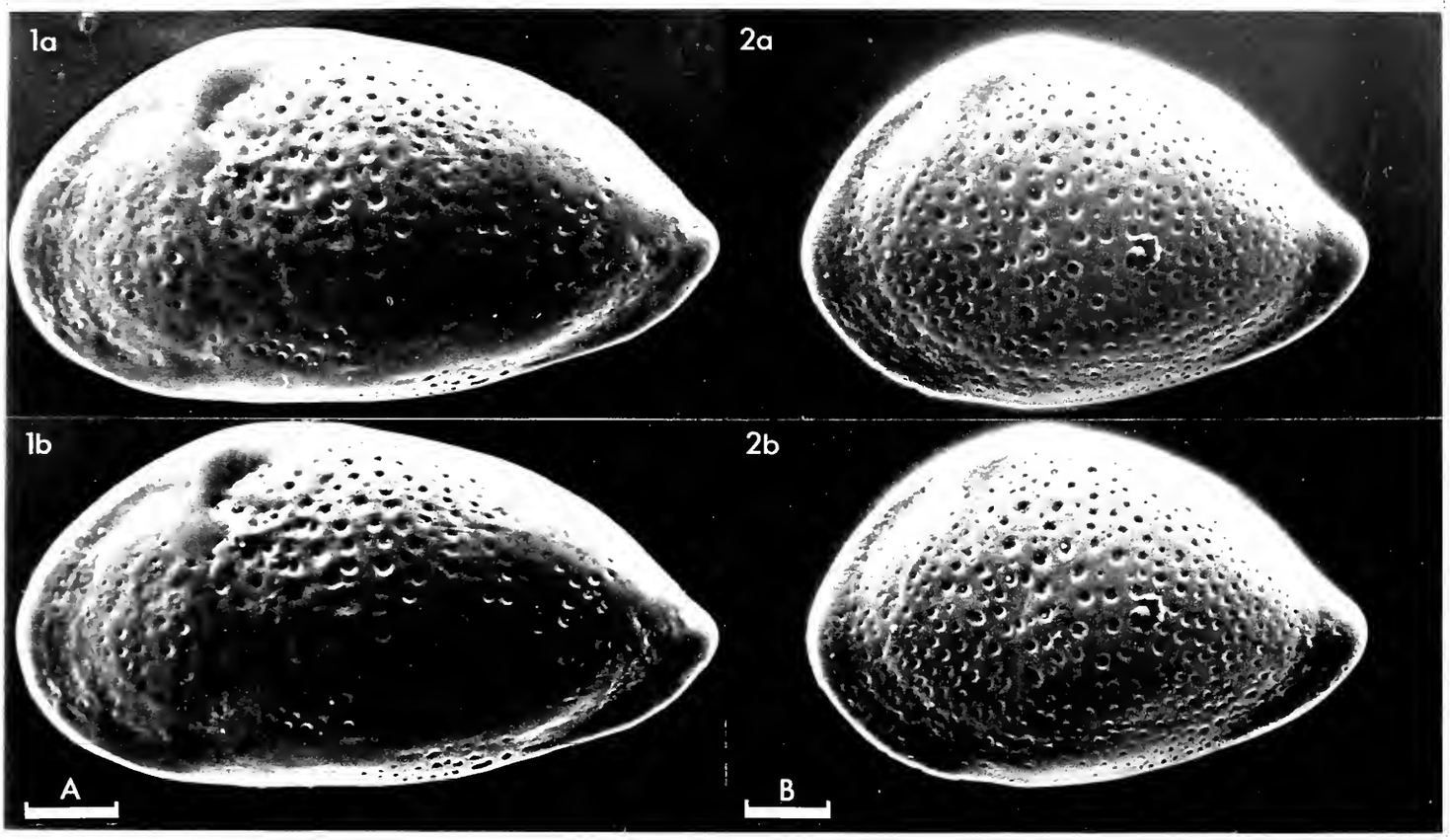
Diagnosis: A *Schuleridea* with asymmetrically rounded anterior margin and upturned caudal termination in the left valve. The elongated, pitted valves taper posteriorly.

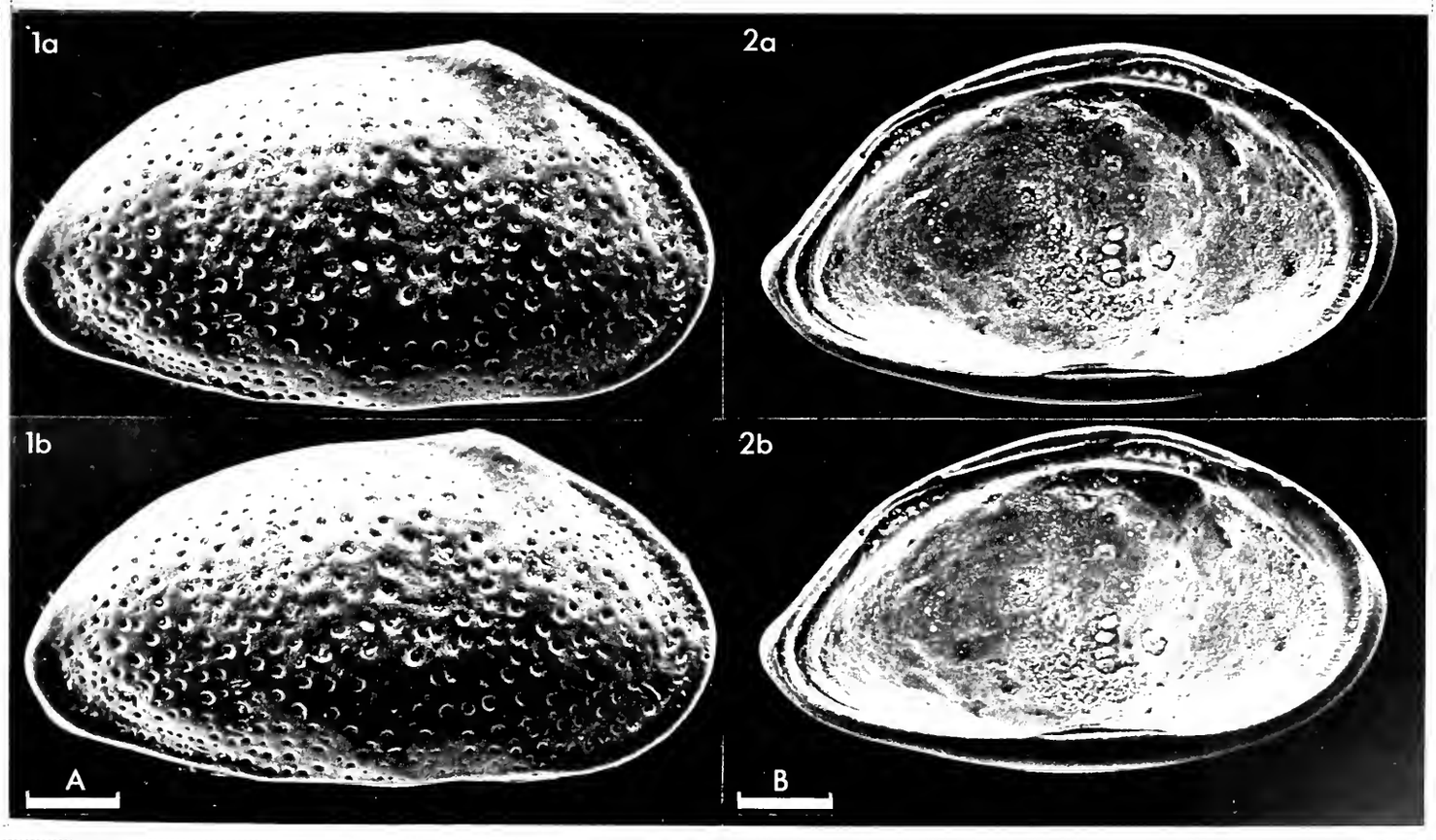
Remarks: Based on external morphology this species is a homoeomorph of *Apatocythere spinosa* Neale, 1962 (see *Stereo-Atlas of Ostracod Shells* **5** (15) 101, 1978), from which it is easily differentiated by the hinge structure. It also lacks the marginal spines seen on the right valve of *A spinosa*.

Distribution: Found in the Lower Hauterivian clays in Britain, it also occurs in the shallow neritic and outer sublittoral sediments of the Lower Saxony Basin of N Germany (Kemper 1971). From the Upper Valanginian and Lower Hauterivian of boreholes in the Kujawy area, Poland, J. Sztejn (*Biul. Inst. geol.* **200**, 252, pl. 2, figs. 1, 2, 1967.) has described this or a closely allied species as *S. aff. lamplughi* and the same author (*Biul. Inst. geol.* **211**, 86, 1969.) has recorded *S.cf. lamplughi* (not figured) from the Lower Hauterivian of the Wawał brickyard, Central Poland.

Explanation of Plate 5, 108

Fig. 1, ♂ RV, ext. lat. (paratype, **HU.13.C.3.11**, 740 μm long); fig. 2, ♀ LV, int. lat. (paratype, **HU.13.C.3.65**, 720 μm long). Scale A (100 μm ; x 133), fig. 1; scale B (100 μm; x 125), fig. 2.


1a
2a
1b
2b
A
B


1a
2a
1b
2b
A
B

Stereo-Atlas of Ostracod Shells 5 (17) 109 - 112 (1978)
595.337.14 (116.311) (427.4 : 162.001.54) : 551.351 + 552.52

ON *SCHULERIDEA JUDDI* NEALE

by John W. Neale
(University of Hull, England)

Schuleridea juddi Neale, 1962

1962 *Schuleridea juddi* sp. nov. J.W. Neale, *Micropaleontology* 8 (4), 439, pl. 5, figs. 1, 4, 7, 10, 13, pl. 6, fig. 4, pl. 13, figs. 17 - 20.

Holotype: University of Hull coll. **HU.1.C.22 43**, ♀ LV.

Type locality: Coastal Section, D6F Bed, Speeton Clay, Speeton, E Yorkshire, England; lat. 54° 10'N, long. 0° 14'40"W. Upper Berriasian, Lower Cretaceous.

Figured specimens: University of Hull coll. nos. **HU.13.C.2.5** (♀ LV : Pl. **5**, 110, fig. 1), **HU.13.C.2.100** (♂ LV : Pl. **5**, 110, fig. 2), **HU.1.C.22.51** (♀ RV: Pl. **5**, 112, fig. 1), **HU.13.C.2.90** (♂ RV: Pl. **5**, 112, fig. 2). All the figured specimens are from Bed D6 of the type locality.

Explanation of Plate 5, 110

Fig. 1, ♀ LV, ext. lat. (**HU.13.C.2.5**, 728 μm long); fig. 2, ♂ LV, ext. lat. (**HU.13.C.2.100**, 844 μm long).
Scale A (100 μm; x 110), figs. 1, 2.

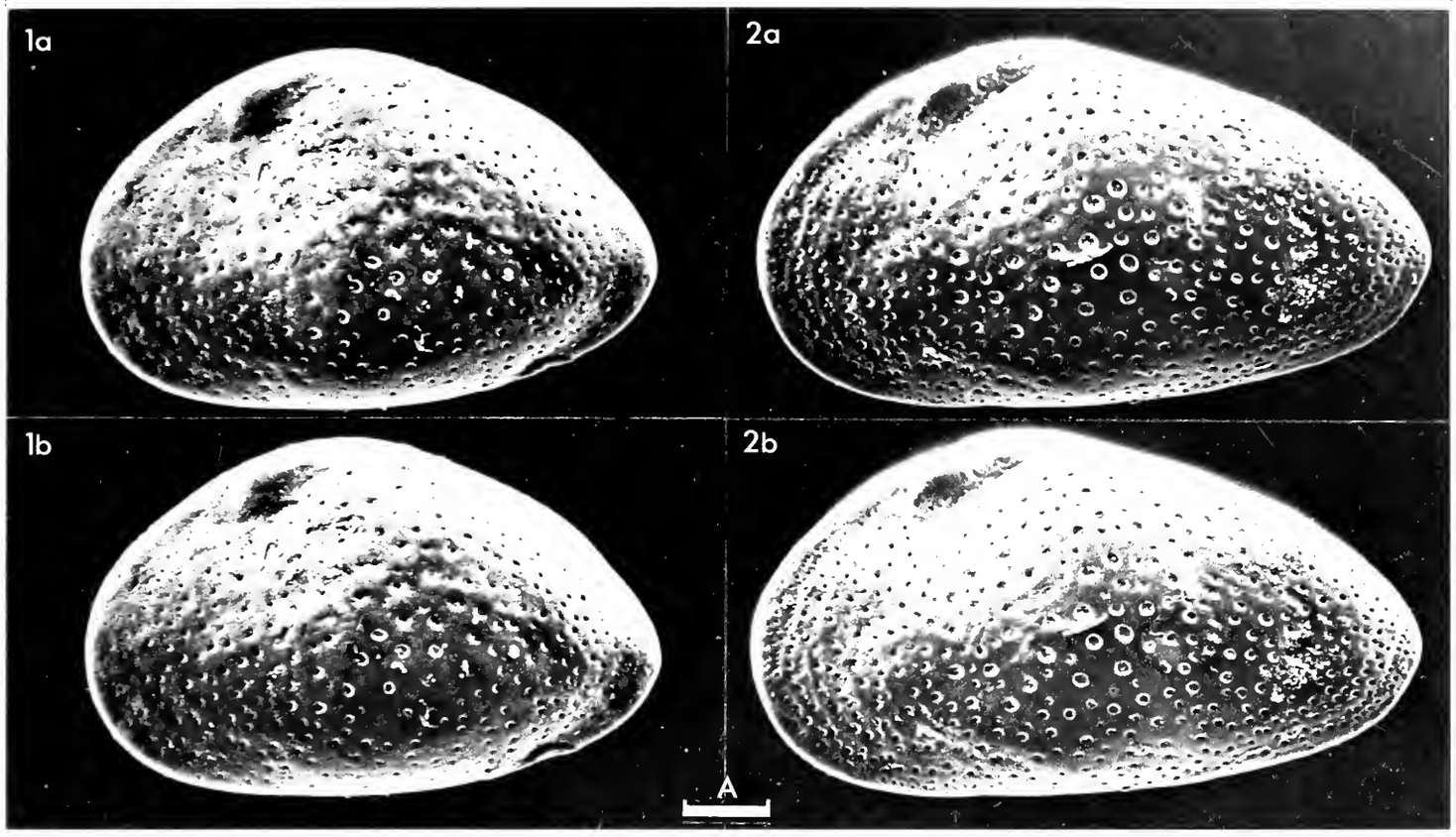
Diagnosis: Elongate-oval, tapering strongly posteriorly in lateral view and with a prominent eye tubercle. Surface pitted, but not as strongly as in *S. praethoerenensis* Bartenstein & Brand, 1959. Strong dimorphism characteristic of the genus.

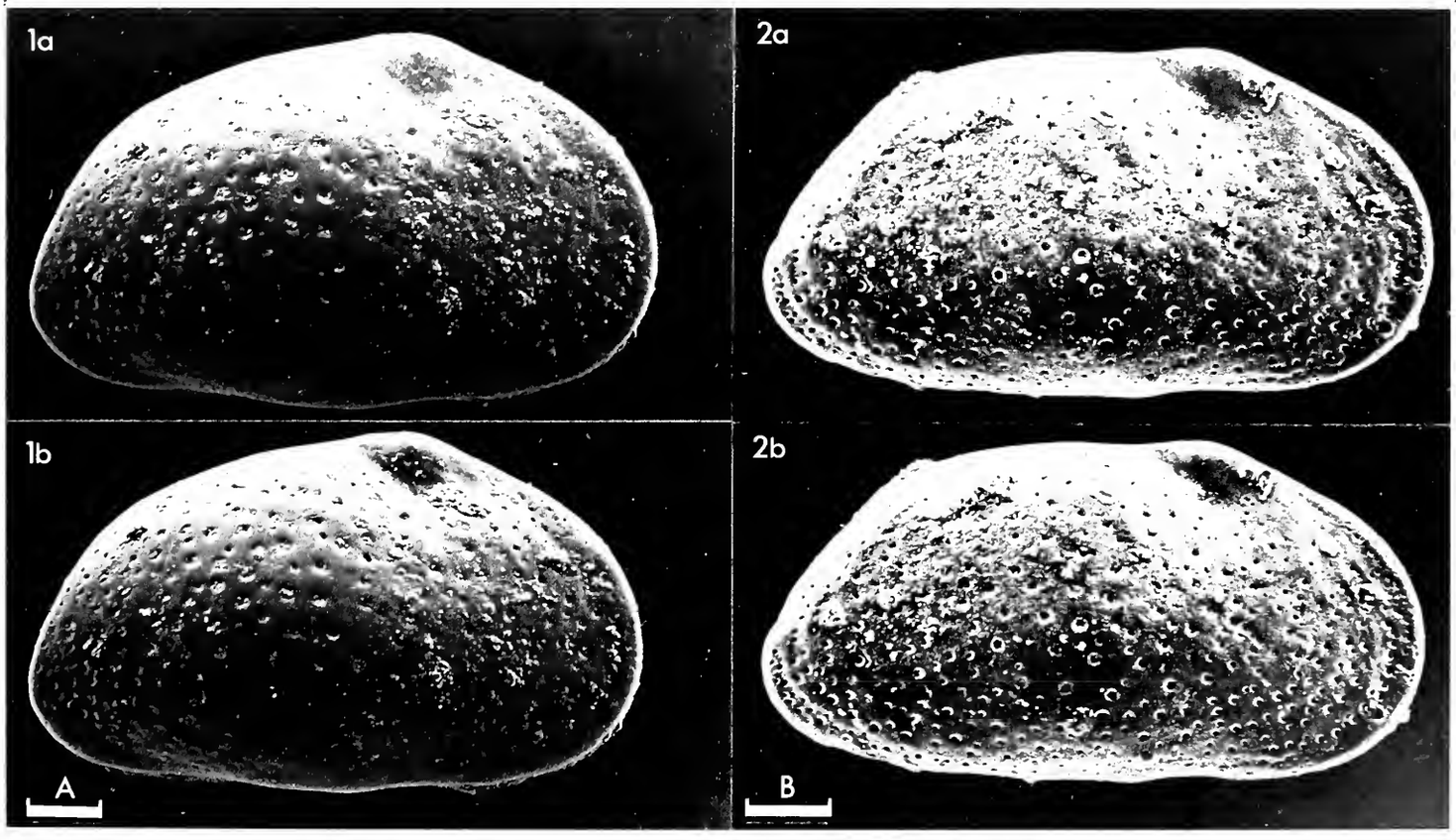
Distribution: The species is typical of the marine Berriasian of northern England where it is associated with *Galliaecytheridea teres, Mandelstamia sexti, Cytheropterina triebeli, Paracypris caerulea* and *Paranotacythere speetonensis*.

O.B. Christensen (*Geosci. Man* **6**, 105, 1964) states that *S. juddi* does not occur in the *G.teres* zone in the Danish Embayment, where its place appears to be taken by *S. praethoerenensis*. In Poland, J. Sztejn (*Biul. Inst. geol.* **211**, 86, 1969) has recorded *S. juddi* (not figured) from the Lower Hauterivian of the Wawał brickyard but this horizon is anomalously high and the specimens would merit re-examination. In Portugal, from the Sierra de Sintra and adjoining areas, J. Rey *et al.* (*C.R. Somm. Seanc. Soc. Géol. France* **5**, 153, 1968) have recorded *S.* aff. *S. juddi* but this taxon needs further investigation. Further south, M. Benest *et al.* (*Géobios, Lyon* **10** (2), 215, pl. 9, figs. 8, 9, 1977) have figured as *S.* aff. *juddi* a closely comparable form from the Upper Berriasian of the Lamoricière Region, Algeria.

Explanation of Plate 5, 112

Fig. 1, ♀ RV, ext. lat. (paratype, **HU.1.C.22.51**, 870 μm); fig. 2, ♂ RV, ext. lat. (**HU.13.C.2.90**, 800 μm long).
Scale A (100 μm; x 100), fig. 1; scale B (100 μm; x 118). fig. 2.


1a
2a
1b
2b
A


1a
2a
1b
2b
A
B

595.337.14 (116.312) (427.4 : 162.001.54) : 551.351 + 552.52

ON *SCHULERIDEA PRAETHOERENENSIS* BARTENSTEIN & BRAND

by John W. Neale
(University of Hull, England)

Schuleridea praethoerenensis Bartenstein & Brand, 1959

1951 *Cytheridea* (*Haplocytheridea*) n.sp. (517). H. Bartenstein & E. Brand, *Abh. senckenb. naturforsh. Ges.* **485**, 331, pl. 14B, fig. 16, pl. 15C, fig. 21, pl. 15D, fig. 48, pl. 20, fig. 2; ? pl. 14C, figs. 54 - 56, pl. 15A, fig. 19.
1959 *Schuleridea praethoerenensis* n. sp. H. Bartenstein & E. Brand *in* H. Bartenstein, *Paläont. Z.* **33**, 226, pl. 27, fig. 2, pl. 28, figs. 3 - 6.
1962 *Schuleridea praethoerenensis* Bartenstein & Brand; J.W. Neale, *Micropaleontology* 8 (4), 440, pl. 5, figs. 2, 5, 8, 11, 14, pl. 16, figs. la, b, 3, pl. 13, figs. 13 - 16.
1973 *Schuleridea* (*Schuleridea*) *praethoerenensis* Bartenstein & Brand; O.B. Christensen, *Geol. Surv. Denmark III Series* **40**, 116 (not figured).
1974 *Schuleridea praethoerenensis* Bartenstein; O.B. Christensen, *Geosci. Man* **6**, 105 *et seq.* (not figured).

Holotype: In the personal collections of Dr. H. Bartenstein, W Germany; ♀ LV.

Type locality: Core from 173.6 - 177m, Voigtei no. 2 borehole, NW Germany; lat. 52° 36'19"N, long. 8° 56'51"E, 60 km WNW of Hannover and 55 km SSE of Brenen. Mittel-Valendis 2, Valanginian, Lower Cretaceous.

Explanation of Plate 5, 114

Fig. 1, ♀ LV, ext. lat. (**HU.1.C.29.49**, 692 μm long); fig. 2, ♂ LV, ext. lat. (**HU.1.C.29.28**, 792 μm long).
Scale A (100 μm; x 98), fig. 1; scale B (100 μm; x 106), fig. 2.

Figured specimens: University of Hull coll. nos. **HU.1.C.29.49** (♀ LV: Pl. **5**, 114, fig. 1), **HU.1.C.29.28** (♂ LV: Pl. **5**, 114, fig. 2), **HU.1.C.29.75** (♀ RV: Pl. **5**, 116, fig. 1), **HU.1.C.29.60** (♂ RV: Pl. **5**, 116, fig. 2). All the figured specimens are from Bed D2E, 1ft 6in above the base, Coastal section, Speeton Clay, Speeton, E Yorkshire, England; lat. 54° 10'N. long. 0° 14'40"W, Valanginian, Lower Cretaceous.

Diagnosis: Species of *Schuleridea* with valves very high in proportion to length, strongly pitted and truncated postero-dorsally.

Remarks: Papers on the congeneric *S. lamplughi* Neale, 1962 and *S. juddi* Neale, 1962 are also to be found in the *Stereo-Atlas of Ostracod Shells* (105 - 108, 109 - 112, 1978 respectively).

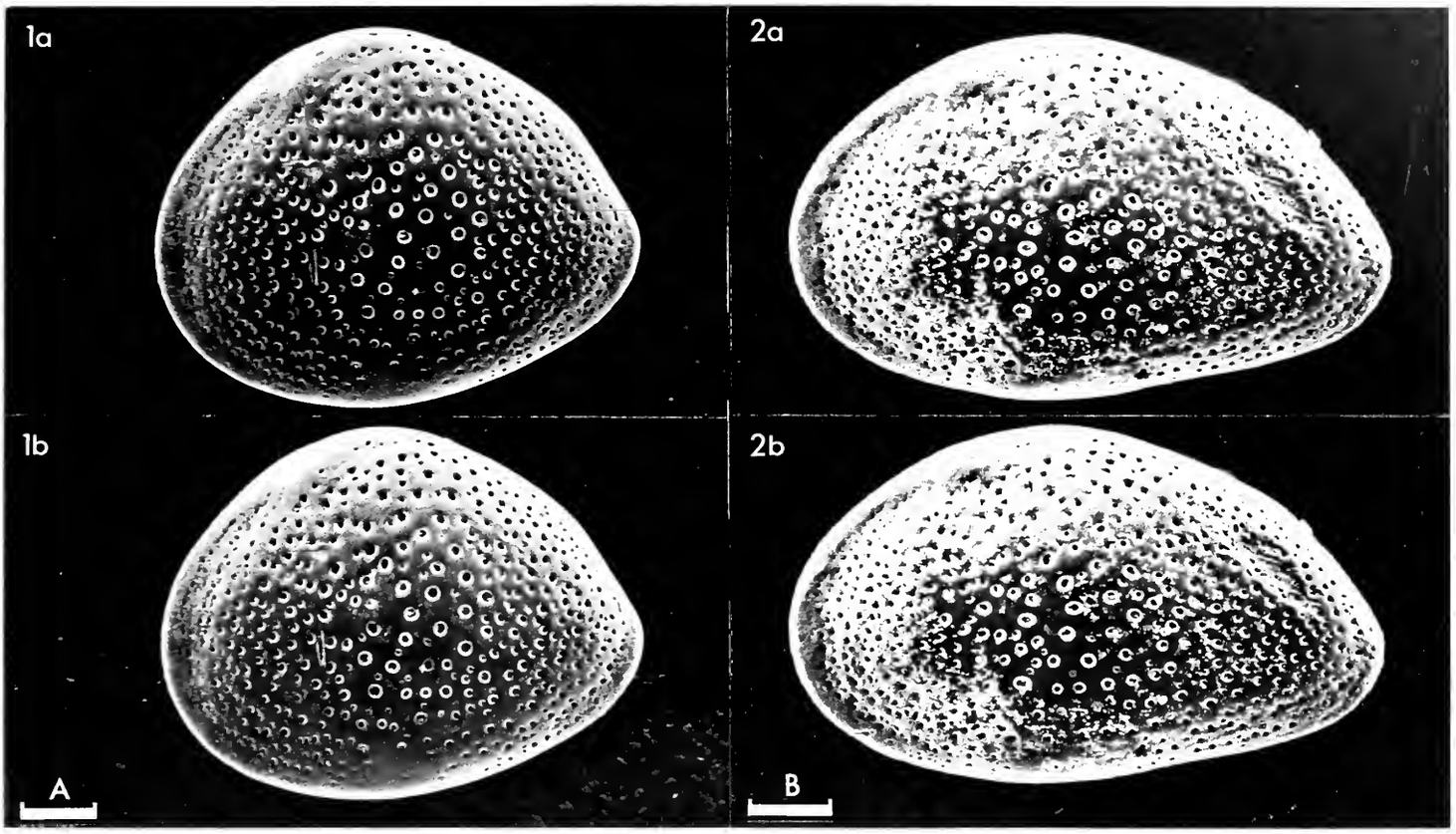
Distribution: In Britain and Germany this species has not been found outside Valanginian deposits where it is associated typically with *Protocythere hannoverana*. In the Danish Embayment it also occurs in the Valanginian but, in addition, Christensen (1973) has recorded it in typically Berriasian faunas from that area.

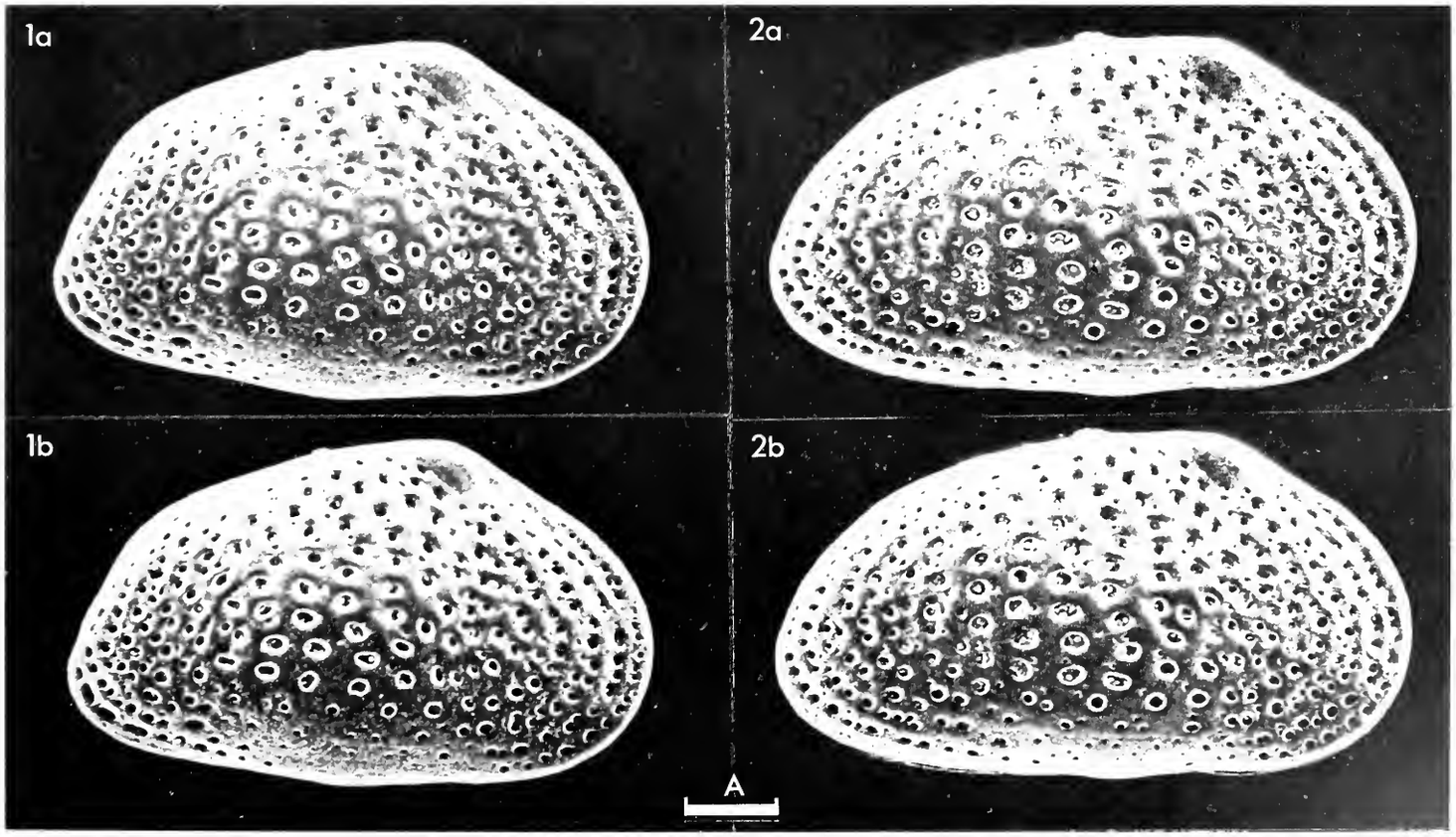
Babinot *et al.* (*Annls Univ. Provence Sci.* **46**, 191 *et al.*, 1971) have recorded *S. praethoerenensis*, *S.* cf. *praethoerenensis* and *S.* gr. *praethoerenensis* (not figured) from a number of Upper Berriasian/Lower Valanginian sections in eastern Basse-Provence, SE France, and P. Donze (*in* H. Löffler & D. Danielopol (Eds.), *Aspects of Ecology and Zoogeography of Recent and Fossil Ostracoda*, Proc. Sixth Int. Symp. Ostracoda, 445, 1977, The Hague) lists *S.* aff. *praethoerenensis* as one of the common species in the Berriasian neritic facies of the Iberian peninsula and Vocontian Basin. P. Ascoli (*Maritime Sediments Spec. Publ. 1*, 699 *et al.*, pl. 8, fig. 9, 1976) has found a closely comparable form, noted as *S.* aff. *praethoerenensis*, in Berriasian/Valanginian deposits of the Scotia Shelf, Atlantic Canada. This form also appears to occur in the underlying Tithonian (*ibid.*, 702).

Acknowledgement: Dr. H. Bartenstein is thanked for his kindness in supplying information relating to the type specimen and type locality.

Explanation of Plate 5, 116

Fig. 1, ♀ RV, ext. lat. (**HU.1.C.29.75**, 688 μm long); fig. 2, ♂ RV, ext. lat. (**HU.1.C.29.60**, 752 μm long).
Scale A (100 μm; x 120), figs. 1, 2.


1a
2a
1b
2b
A
B


1a
2a
1b
2b
A

595.337.14 (118.14) (44 : 161.002.048 + 493 +549) : 551.35 : 552.51

ON *PHALCOCYTHERE HORRESCENS* (BOSQUET)

by Qadeer A. Siddiqui
(Saint Mary's University, Halifax, Canada)

Genus *PHALCOCYTHERE* Siddiqui, 1971

Type-species: (by original designation): *Cythere horrescens* Bosquet 1852.

Diagnosis: A genus of the family Trachyleberididae with a ventral ridge; shell surface reticulate with or without conjunctive spines and/or papillae; mostly with a well-marked posterodorsal process.

Remarks: So far known from the Eocene of Belgium and France (Keij 1957); the Palaeocene and Eocene of Pakistan (Siddiqui 1971); the Palaeocene of Saudi Arabia (Al-Furaih 1976, unpublished Ph.D. thesis, University of Leicester, England); the Eocene and Oligocene of Tanzania (Siddiqui 1971, Ahmad 1977, unpublished Ph. D. thesis, University of Hull, England) and (?) the Palaeocene of the continental shelf off Natal, South Africa (Dingle 1976, *Trans. roy. S. Afr.* Part 1, 35 - 39).

Explanation of Plate 5, 118

Fig. 1, LV, ext. lat. (**Io 4253**, 600 μm long); fig. 2, RV, ext. lat. (**Io 4256**, 630 μm long); fig. 3, RV, ext. lat., detail of ornament, (**Io 4256**).
Scale A (200 μm; x 102), figs. 1, 2; scale B (25 μm; x 466), fig. 3.

Phalcocythere horrescens (Bosquet, 1852)

1852 *Cythere horrescens* sp. nov. J. Bosquet, *Mém. cour. Sav. étr. Acad. r. Sci. Belg.* 24, 119, pl. 6, fig. 5.
1852 *Cythere thierensiana* sp. nov. J. Bosquet, *ibid*, 98, (*pars*).
1852 *Cythere nebulosa* sp. nov. J. Bosquet, *ibid*, 105, pl. 5, fig. 8.
1955 *Trachyleberis horrescens* (Bosquet); V. Apostolescu, *Cahiers géol.*, Paris, nos. **28/29**, 272, pl. 8, figs. 125 - 126.
1957 *Hirsutocythere horrescens* (Bosquet); A.J. Keij, *Inst. roy. Sci. Nat. Belg., Mém.* **136**, 101, pl. 15, fig. 4, pl. 17, figs. 6 - 7.
1971 *Phalcocythere horrescens* (Bosquet); Q.A. Siddiqui, *Bull. Br. Mus. nat. Hist. (Geol.)* Suppl. **9**, 57, pl. 29, fig. 5; pl. 30, figs. 1 - 6; pl. 33, figs. 12 - 13.

Lectotype: Bosquet Collection, **74b**, RV, Royal Belgian Institute of Natural Sciences, Brussels.

Type locality: Grignon, Paris Basin, Lutetian.

Figured specimens: Brit. Mus. (Nat. Hist.) nos. **Io 4253** (LV: Pl. **5**, 118, fig. 1), **Io 4256** (RV: Pl. **5**, 118, figs. 2, 3), **Io 4255** (RV: Pl. **5**, 120, fig. 1), **Io 5507** (LV: Pl. **5**, 120, figs. 2, 3), **Io 4253** and **Io 4255** both from an abandoned quarry in the grounds of the Ecole Agriculture at Grignon, Paris Basin, France, approx. lat. 48° 45'N, long. 2° 28'E; Lutetian IV, yellow and white calcareous, fossiliferous sands, approx. 7m in thickness; coll. A.J. Keij. **Io 4256** and **Io 5507** both from Villiers-St.-Frédéric, Paris Basin, France, approx. lat. 48° 50'N, long. 1° 50'E; Lutetian; coll. by N. Grékoff.

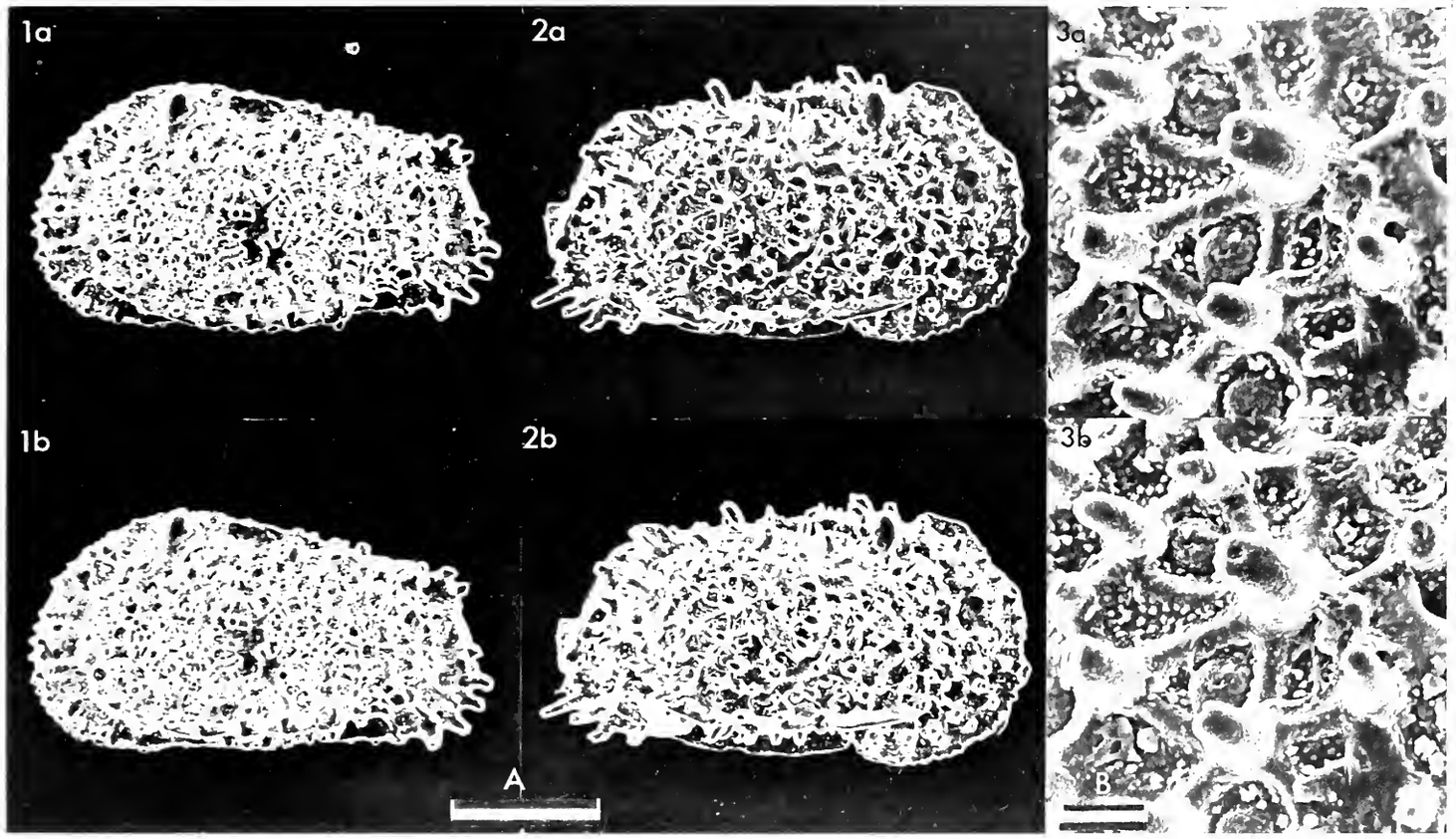
Diagnosis: Species of *Phalcocythere* with well-marked ventral ridge and posterodorsal process; posteroventral margin ornamented with five or six large spines.

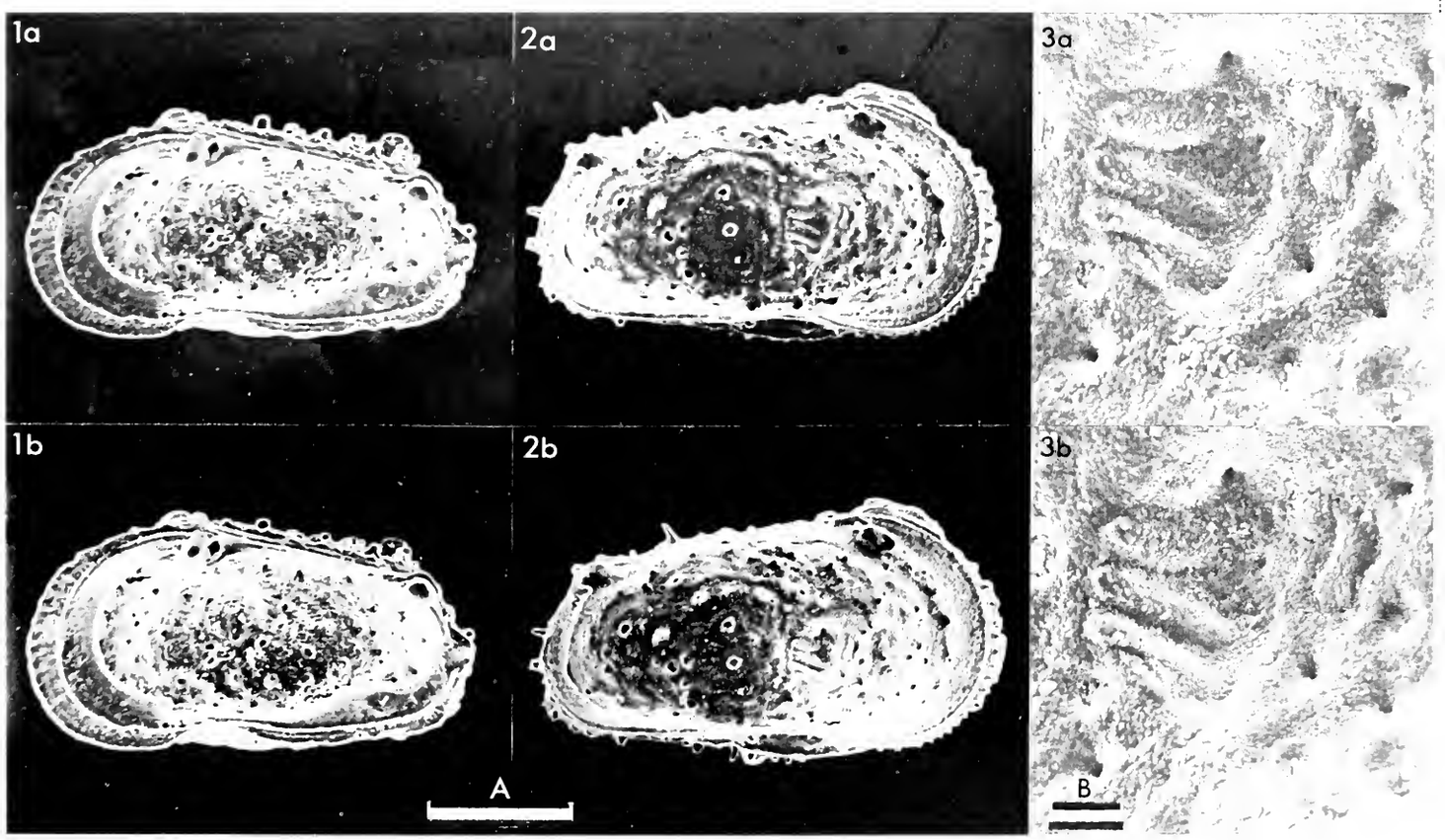
Remarks: Keij (1957, 102, pl. 15, fig. 4) observed two round closely set frontal scars in his material. A left valve from the Lutetian of Villiers-St.-Frédéric, Paris Basin, photographed herein (Pl. **5**, 120, figs. 2, 3) shows a single sigmoid frontal scar formed by the fusion of the two discrete scars shown by Keij plus the addition of a third rounded scar at the top.

Distribution: Belgium (Lutetian and Ledian), France (Upper Ypresian, Lutetian and Ledian). For details on the distribution see Keij, 1957, 101.

Explanation of Plate 5, 120

Fig. 1, RV, int. lat. (**Io 4255**, 590 μm long); fig. 2, LV, int. lat. (**Io 5507**, 622 μm long); fig. 3, LV, int. mus. sc. (**Io 5507**).
Scale A (200 μm; x 102), figs. 1, 2; scale B (25 μm; x 436), fig. 3.


1a
2a
3a
1b
2b
3b
A
B


1a
2a
3a
1b
2b
3b
A
B

Stereo-Atlas of Ostracod Shells 5 (20) 121 - 124 (1978)
595.337.14 (118.213) (560 : 161.036.36) : 551.351 + 552.51

ON *CYAMOCYTHERIDEA CONTRACTA* DORUK sp. nov.

by Neriman Doruk
(Ege University, Izmir, Turkey)

Cyamocytheridea contracta sp. nov.

Holotype: Brit. Mus. (Nat. Hist.) **Io 4785**; ♂ RV.

Type locality: Road cutting about 2km SW of Com, Turkey, approx. lat. 32°02'N, long. 36°12'E; yellow sandstone with abundant molluscan shell fragments and foraminifera, shallow marine, presumed littoral, Upper Tortonian.

Derivation of name: Latin, meaning contracted , referring to main pore of sieve plate in the normal pore canals.

Explanation of Plate 5, 122

Fig. 1, ♂ RV, ext. lat. (holotype, **Io 4785**, 670 μm long); figs. 2, 3, 4, ♀ LV (**Io 4786**, 660 μm long): fig. 2, ext. lat.; fig. 3, detailed view of normal pores and ornament; fig. 4, detailed view of one pore.
Scale A (500 μm; x 102), fig. 1; scale B (500 μm; x 99), fig. 2; scale C (20 μm; x 900), fig. 3; scale D (5 μm; x 3500), fig. 4.

Figured specimens: Brit. Mus. (Nat. Hist.) specimens: **Io 4785** (holotype, ♂ RV: Pl. 5, 122, fig. 1); **Io 4786** (♀ LV: Pl. 5, 122, figs. 2, 3, 4); **Io 4787** (♀ LV: Pl. 5, 124, fig. 1); **Io 4788** (♀ RV: Pl. 5, 124, figs. 2, 3). **Io 4785** and **Io 4786** are from the type locality. **Io 4787** is from the base of the section, 1km SW of Babatorun, Turkey, approx. lat. 36° 05'N, long. 36° 13'E, Tortonian (lithology and ecology as at type locality). **Io 4788** is from 1km NW of Yolagzi, Turkey, approx. lat. 36°04'N, long. 36°14'E, Tortonian.

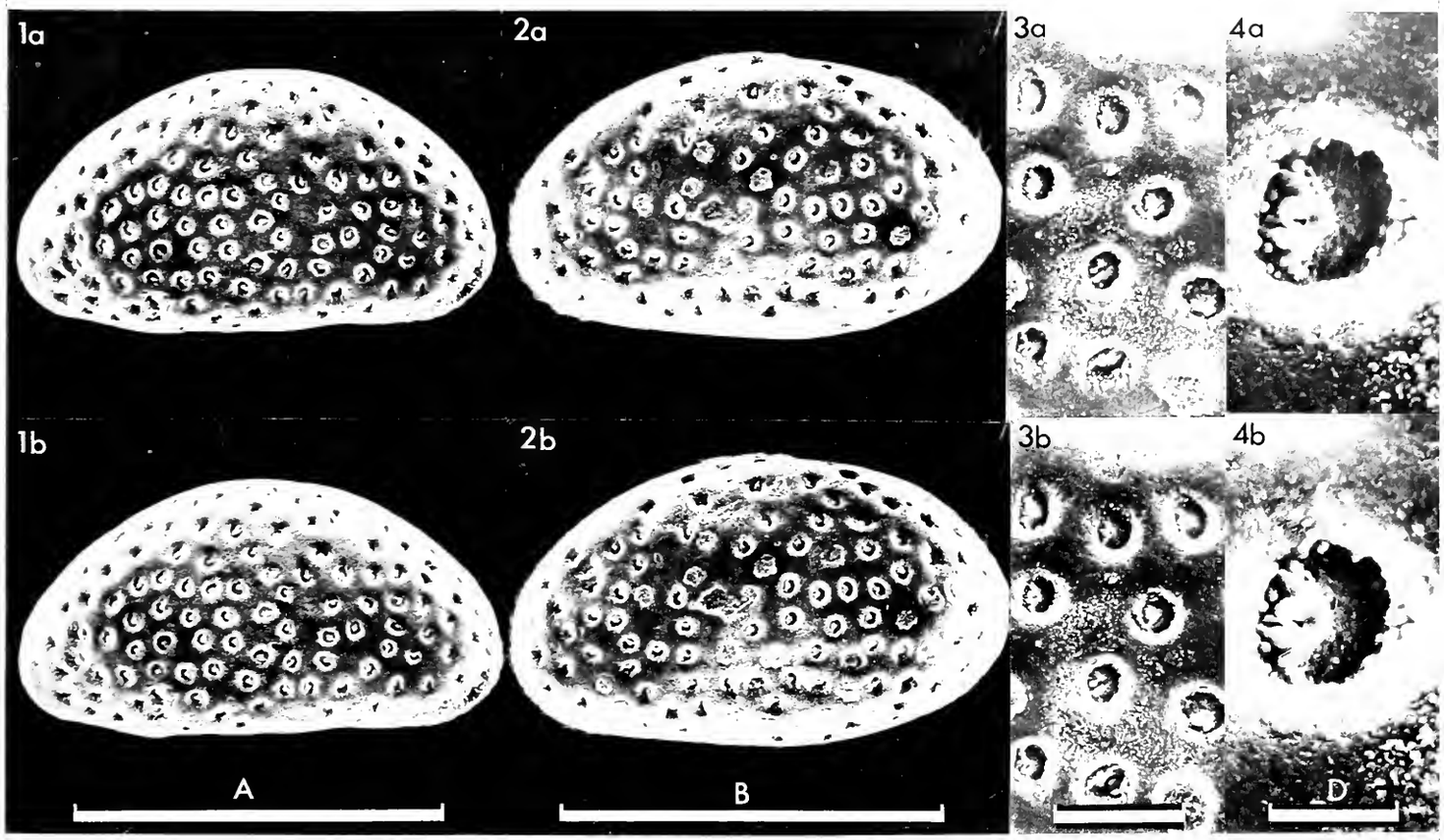
Diagnosis: Carapace egg-shaped, shell surface covered with abundant large deep circular pits in which normal pore canals contain sieve-plates. Main pore is surrounded by a protrusion.

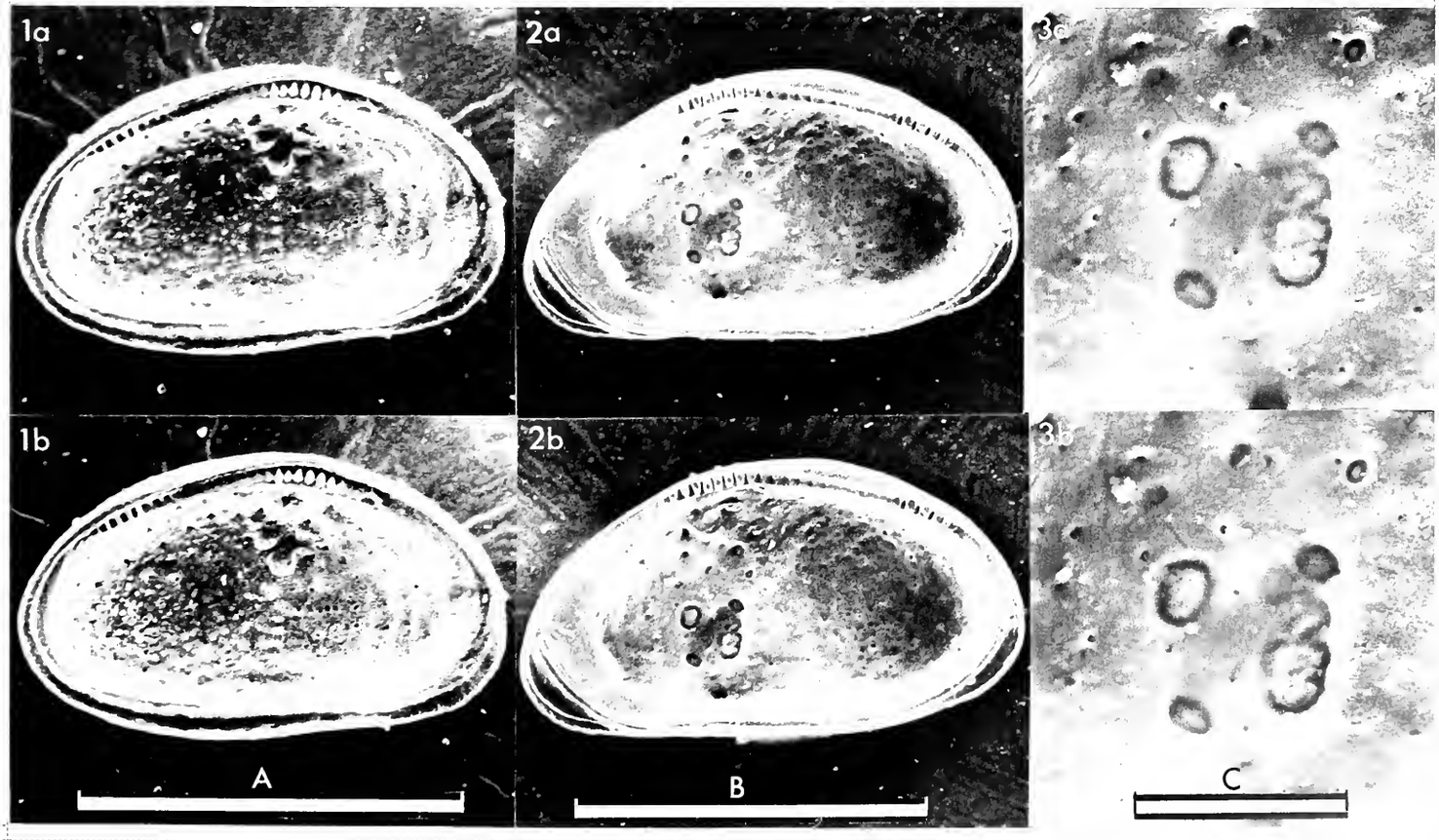
Remarks: Width of vestibule and marginal area, and size of fossae may be smaller than in the specimens figured.

Distribution: *C. contracta* has been found in the Tortonian at several localities in the Antakya region, Turkey.

Explanation of Plate 5, 124

Fig. 1, ♀ LV, int. lat. (**Io 4787**, 640 μm long); figs. 2, 3, ♀ RV (**Io 4788**, 710 μm long): fig. 2, int. lat.; fig. 3, muscle scars.
Scale A (500 μm; x 108), fig. 1; scale B (500 μm; x 100), fig. 2; scale C (100 μm; x 295), fig. 3.


1a
2a
3a
4a
1b
2b
3b
4b
A
B
D


1a
2a
3a
1b
2b
3b
A
B
C

Stereo-Atlas of Ostracod Shells 5 (21) 125 - 128 (1978)
595.337.14 (118.213) (560 : 161.036.36) : 551.351 + 552.54

ON *CYAMOCYTHERIDEA MENISCUS* DORUK sp. nov.

by Neriman Doruk
(Ege University, Izmir, Turkey)

Cyamocytheridea meniscus sp. nov.

Holotype: Brit. Mus. (Nat. Hist.) **Io 4778**, ♂ RV.

Type locality: Erosional stream cutting 1km S of Sarılı, Antakya, Turkey, approx. lat. 36° 06'N, long. 36° 07'E, bioclastic limestone with molluscan shells, presumed shallow marine, Tortonian.

Derivation of name: Latin, meaning "crescent", referring to the shape of the normal pore canals.

Explanation of Plate 5, 126

Fig. 1, ♂ RV, ext. lat. (holotype, **Io 4778**, 820 μm long); fig. 2, ♀ LV, ext. lat. **Io 4779**, 850 μm long).
Scale A (500 μm; x 101), fig. 1; scale B (500 μm; x 104), fig. 2.

Figured specimens: Brit. Mus. (Nat. Hist.) nos. **Io 4778** (holotype, ♂ RV: Pl. **5**, 126, fig. 1; Pl. **5**, 128, figs. 2, 3); **Io 4779** (♀ LV: Pl. **5**, 126, fig. 2; Pl. **5**, 128, fig. 1). Both specimens are from the type level and locality at the base of the section.

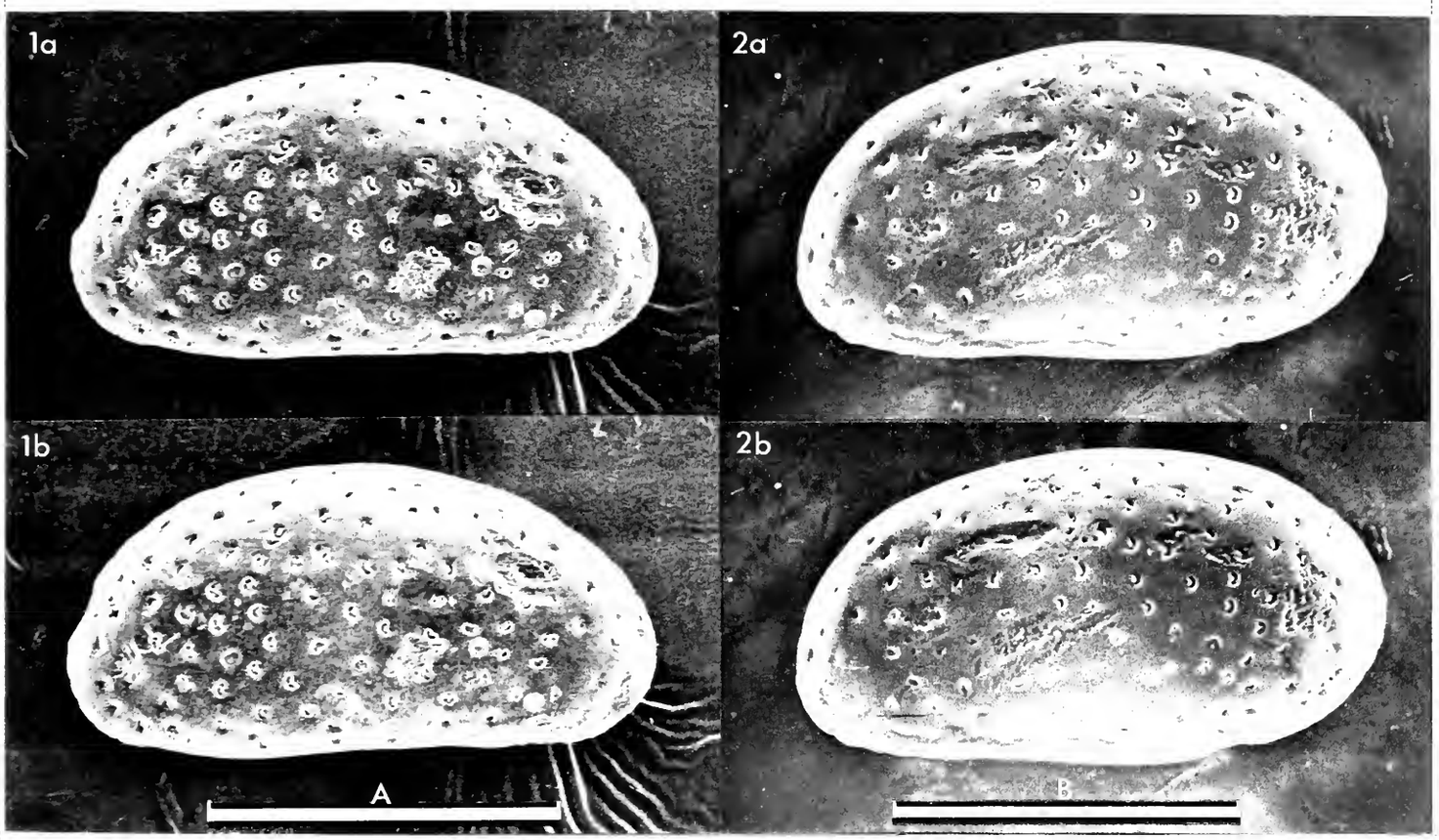
Diagnosis: Carapace elongate. Normal pore canals crescent-shaped.

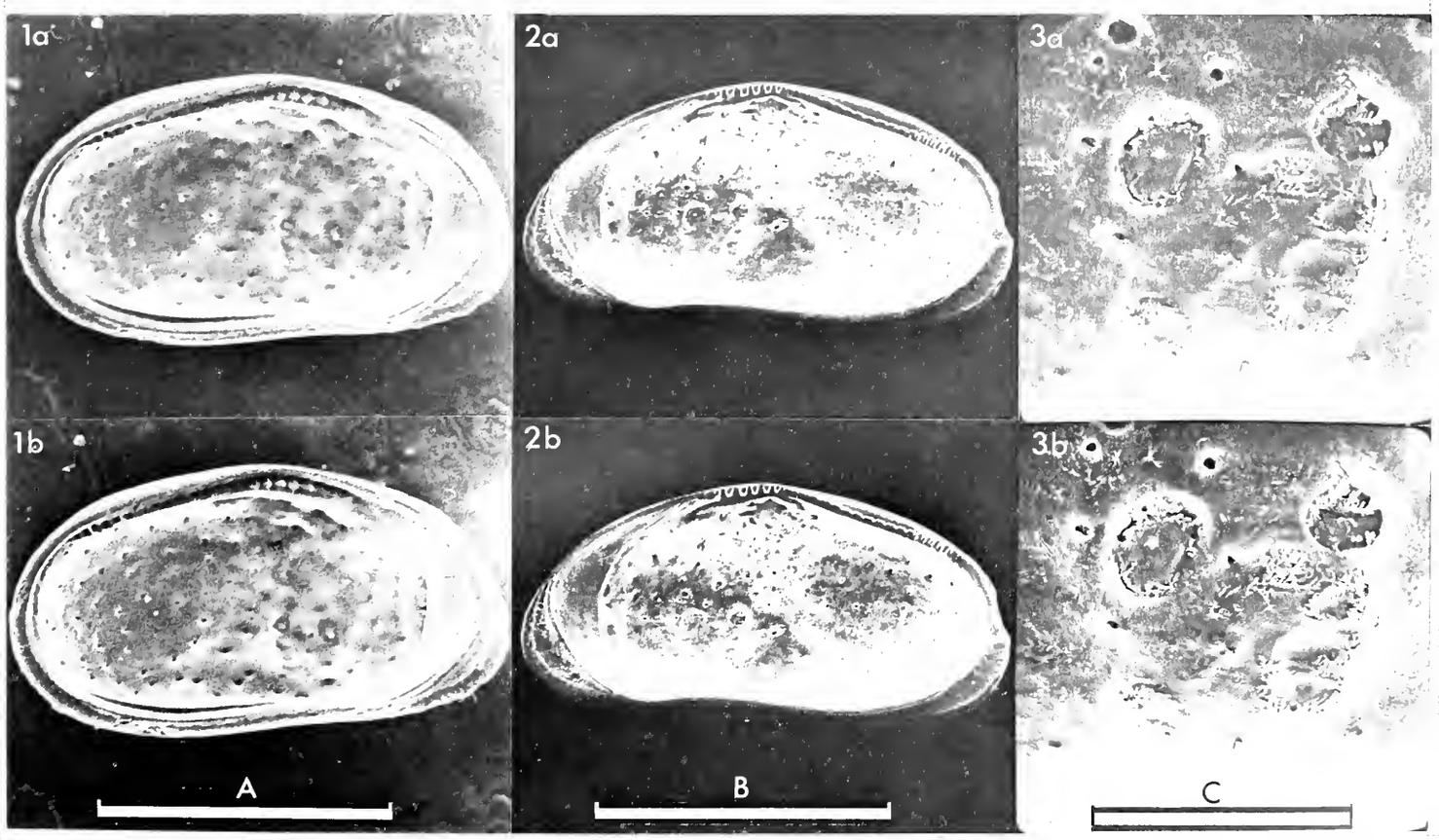
Remarks: Size is variable. Males are considerably more elongate than females (see Pl. **5**, 126, fig. 1).

Distribution: This specimen has so far only been found at the base of the section in the type locality.

Explanation of Plate 5, 128

Fig. 1, ♀ LV, int. lat. (**Io 4779**); figs. 2, 3, ♂ RV, (holotype, **Io 4778**); fig. 2, int. lat.; fig. 3, musc. sc.
Scale A (500 μm; x 88), fig. 1; scale B (500 μm; x 86), fig. 2; scale C (100 μm; x 360), fig. 3.


1a
2a
1b
2b
A
B


1a
2a
3a
1b
2b
3b
A
B
C

Stereo-Atlas of Ostracod Shells 5 (22) 129 - 132 (**1978**)
595.337.14 (118.213) (560 : 161.036.36) : 551.351 + 552.54

ON *CYAMOCYTHERIDEA OBSTIPA* DORUK sp. nov.

by Neriman Doruk
(Ege University, Izmir, Turkey)

Cyamocytheridea obstipa sp. nov.

Holotype: Brit. Mus. (Nat. Hist.) **Io 4780**, ♂ RV.

Type locality: Stream cutting, 1km S of Sarılı, Antakya, Turkey, approx. lat. 36° 06'N, long. 36° 07'E; bioclastic limestone with molluscan fragments, presumed shallow marine, Tortonian.

Derivation of name: Latin, meaning "inclined obliquely", referring to the sieve plates of the normal pore canals.

Diagnosis: Carapace subrectangular with slightly convex dorsal margin; anterior and posterior ends short, broadly rounded. Normal pore canals with conical, obliquely inclined sieve plates. Female more tumid than male.

Explanation of Plate 5, 130

Fig. 1, ♂ RV, ext. lat. (holotype, **Io 4780**, 700 μm long); figs. 2, 3, ♀ LV (**Io 4781**, 800 μm long); fig. 2, ext. lat.; fig. 3, detailed view of normal pores and surface.
Scale A (500 μm; x 102), fig. 1; scale B (500 μm; x 86), fig. 2; scale C (50 μm; x 510), fig. 3.

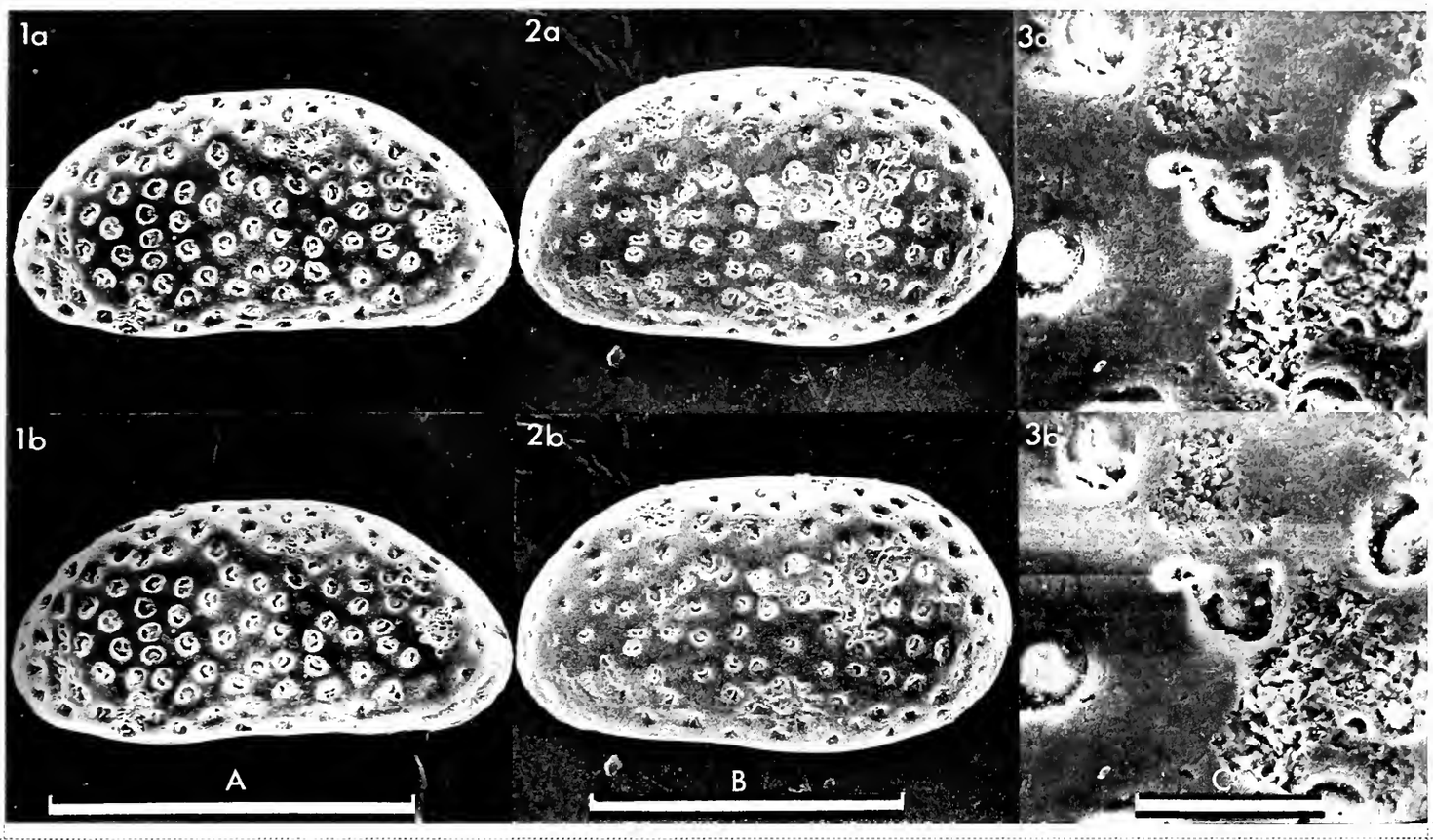
Figured specimens: Brit. Mus. (Nat. Hist.) nos. **Io 4780** (holotype, ♂ RV: Pl. **5**, 130, fig. 1; Pl. **5**, 132, fig. 2); **Io 4781** (♀ LV: Pl. **5**, 130, figs. 2, 3; Pl. **5**, 132, figs. 1, 3). Both specimens are from the type locality, 2m above the base of the section.

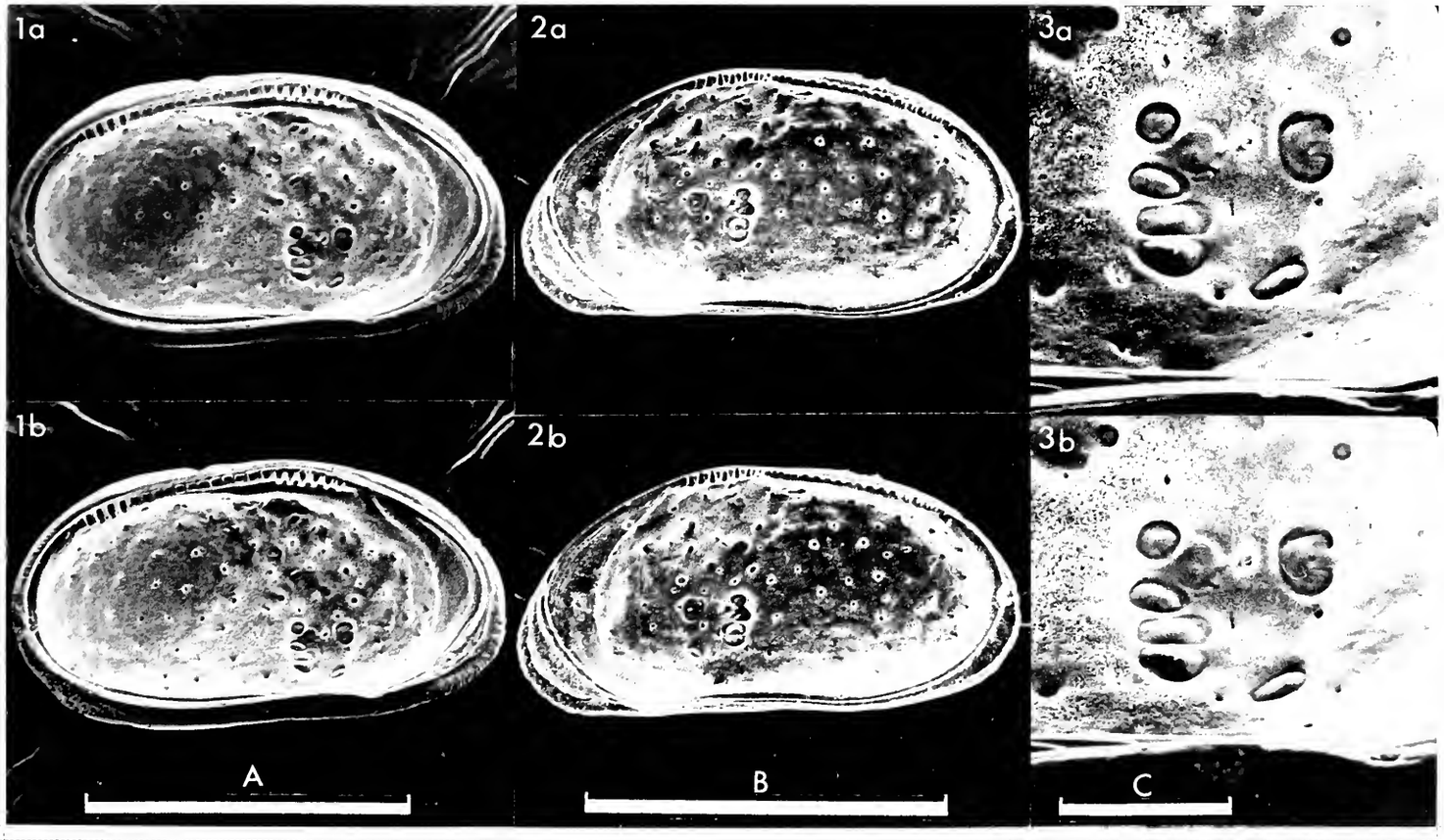
Remarks: *C. obstipa* sp. nov. differs from *C. polygona* Doruk (*Stereo-Atlas of Ostracod Shells*, 1978, **5**, 133 - 136) and *C. meniscus* Doruk (*Stereo-Atlas of Ostracod Shells*, 1978, **5**, 125 - 128, 1978) by the large size of the fossae producing an almost reticulate ornamentation. Further, the quadrate posterior outline of *C. obstipa* contrasts with the narrowly rounded posterior and obliquely angled posterodorsal slope of *C. polygona*. The short, broadly rounded anterior end of *C. obstipa* differs from the elongate anterior of *C. meniscus* which has the anterior cardinal angle set well back on the carapace, almost as far back, but not quite, as the valve centre.

Distribution: This species has so far only been found in the type locality.

Explanation of Plate 5, 132

Figs. 1, 3, ♀ LV (**Io 4781**): fig. 1, int. lat.; fig. 3, musc. sc.; fig. 2, ♂ RV, int. lat. (holotype, **Io 4780**).
Scale A (500 μm; x 88), fig. 1; scale B (500 μm; x 100), fig. 2; scale C (100 μm; x 230), fig. 3.


1a
2a
3a
1b
2b
3b
A
B
C


1a
2a
3a
1b
2b
3b
A
B
C

Stereo-Atlas of Ostracod Shells 5 (23) 133 - 136 (1978)
595.337.14 (118.213) (560 : 161.037.35) : 551.351 + 552.54

ON *CYAMOCYTHERIDEA POLYGONA* DORUK sp. nov.

by Neriman Doruk
(Ege University, Izmir, Turkey)

Cyamocytheridea polygona sp. nov.

Holotype: Brit. Mus. (Nat. Hist.) **Io 4775**; ♀ LV.

Type locality: Road cutting 5km E of Salbaş, Turkey, approx. lat. 37° 09'N, long. 35° 10'E; grey marl with abundant foraminifera and molluscan fragments, presumed shallow marine, Tortonian.

Derivation of name: Greek, polygonal, referring to shape of normal pore canals.

Figured specimens: Brit. Mus. (Nat. Hist.) specimens: **Io 4774** (♂ RV: Pl. **5**, 134, fig. 1); **Io 4775** (holotype, ♀ LV: Pl. **5**, 134, figs. 2, 3; Pl. **5**, 136, fig. 1); **Io 4776** (♀ RV; Pl. **5**, 136, figs. 2, 3). **Io 4774** and **Io 4775** are from the base and 2m above the base respectively of the type section. **Io 4776** is from a road cutting 2km S of Salbaş, Turkey, approx. lat. 37° 09'N, long. 35° 07'E, Tortonian (top of section, same lithology and ecology as at type locality).

Explanation of Plate 5, 134

Fig. 1, ♂ RV, ext. lat. (**Io 4774**, 680 μm long); figs. 2, 3, ♀ LV (holotype, **Io 4775**, 680 μm long): fig. 2, ext. lat.; fig. 3, detailed view of normal pore canal.
Scale A (250 μm; x 108), fig. 1; scale B (250 μm; x 112), fig. 2; scale C (10 μm; x 1265), fig. 3.

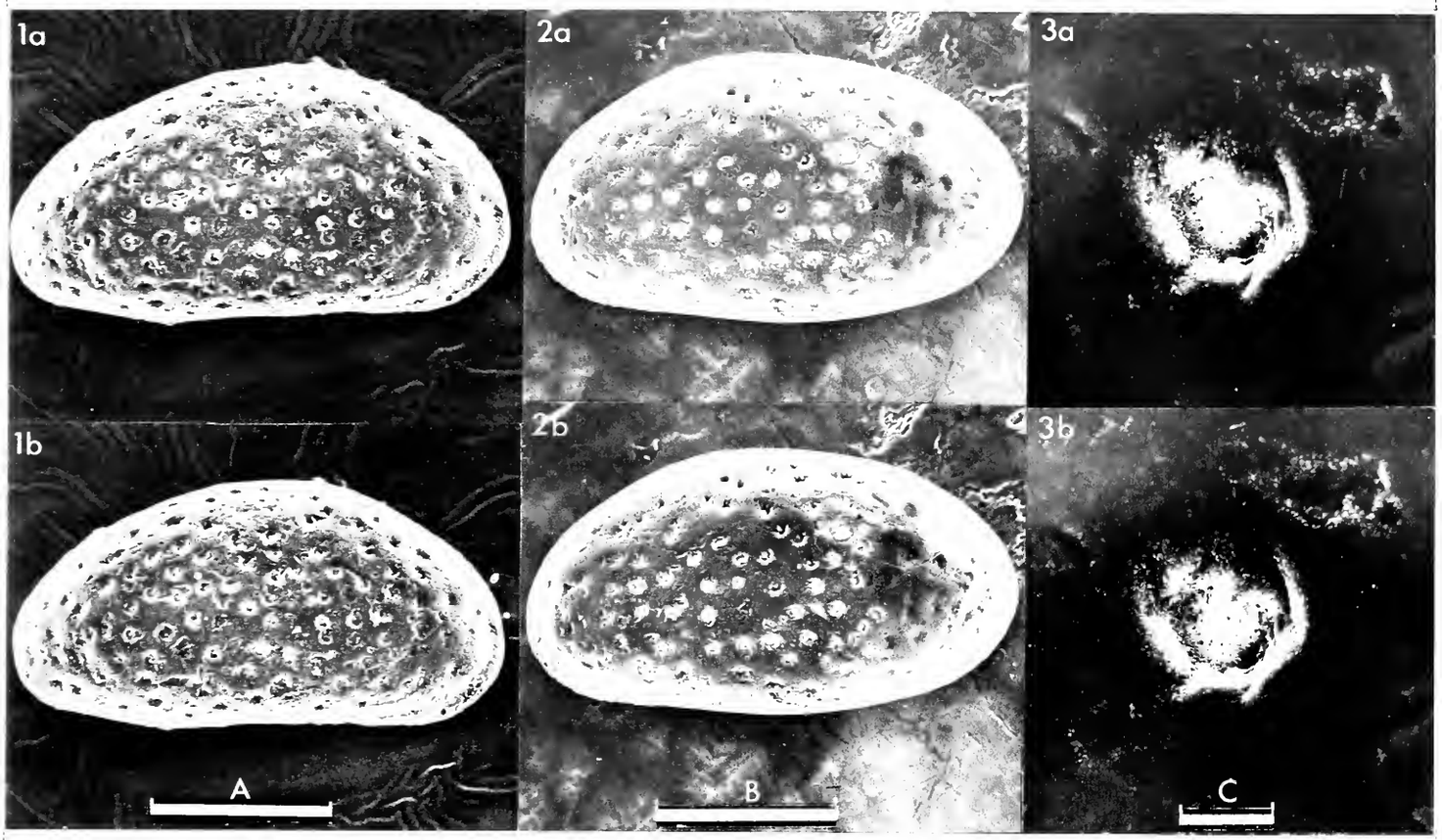
Diagnosis: Carapace with highest part of shell anterior of centre; normal pore canals polygonal in shape.

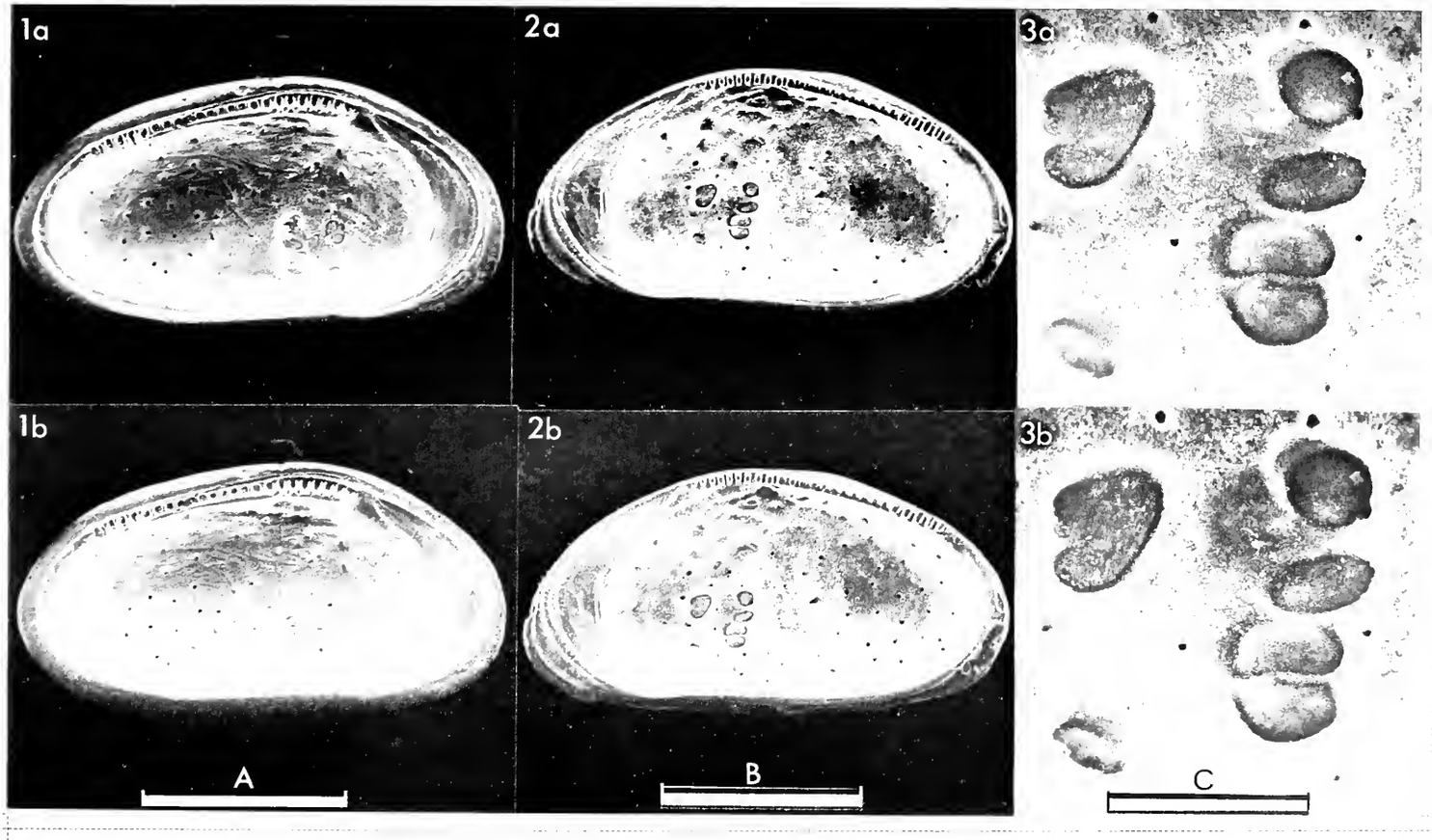
Remarks: Hinge with variable number of teeth: 6 - 10 in anterior element; 4 - 6 in posterior element. Width of vestibule variable. Size variable. Female more tumid than male posteriorly (see Pl. **5**, 134, fig. 2).

Distribution: This species occurs in the Adana and Tarsus regions of Turkey, Tortonian.

Explanation of Plate 5, 136

Fig. 1, ♀ LV, int. lat. (holotype, **Io 4775**); figs. 2, 3, ♀ RV, (**Io 4776**, 600 μm long): fig. 2 int. lat.; fig. 3, musc. sc.
Scale A (250 μm; x 102), fig. 1; scale B (250 μm; x 112), fig. 2; scale C (50 μm; x 570), fig. 3.


1a
2a
3a
1b
2b
3b
A
B
C


1a
2a
3a
1b
2b
3b
A
B
C

595.337.?3 (119.4 + 119.9) (261.27 : 162.013.055) : 551.352 (26.03 : 24.08.1040), 551.353 (26.03 : 24.08, 4000)

ON *ROCKALLIA ENIGMATICA* WHATLEY, FRAME AND WHITTAKER gen. et sp. nov.

by Robin Whatley[1], Paul Frame[2] & John E. Whittaker[3]
(University College of Wales, Aberystwyth[1], Robertson Research International Ltd.[2], British Museum [Natural History], London[3])

Genus *ROCKALLIA* gen. nov.

Type-species : *Rockallia enigmatica* sp. nov.

Derivation of name: From the occurrence and apparent restriction of the type species to Holocene and Recent sediments in the Rockall Trough.

Diagnosis: Subrectangular. Both end margins rounded in left valve. In right valve anterior rounded but posterior bluntly pointed with apex just below mid-height. Dorsal margin straight in female, slightly concave medianly in male. Ventral margin gently biconvex in left valve; accuminate in posterior third in right valve. Left valve slightly larger than right with overlap at the cardinal angles and mid-ventrally. Coarsely reticulate. Vertical element of ribs forming the reticulae dominant and radiating from mid-dorsal position. Normal pore canals open, few and situated on the ribs. Inner lamella narrow with small vestibulae at each end. Selvage strong, sub-peripheral. Hinge lophodont. Four vertically disposed adductor scars, all in contact situated below the mid-point of the hinge margin; single reniform frontal scar.

Explanation of Plate 5, 138

Fig. 1, ♀ LV, ext. lat. (paratype, **OS 7603**, 570 μm long); fig. 2, ♀ RV, ext. lat. (holotype, **OS 7599**, 590 μm long); fig. 3, ♂ RV, ext. lat. (paratype, **OS 7604**, 540 μm long).
Scale A (100 μm; x 110), figs. 1 - 3.

Remarks: This new genus is difficult to assign with certainty to any group of Ostracoda. Although some 200 specimens have been encountered to date none have well preserved appendages although some have "mummified" soft parts. The possession of four adductor scars in a vertical line would seem to indicate cytheracean affinities but the situation of these scars in a dorso-median position, the narrow and primitive inner lamella and the shape and outline are suggestive of the Platycopina. The genus is, on these grounds, and in the absence of soft parts, therefore, tentatively referred to the latter suborder despite the fact that the overlap relationship of the valves militates against this.

Rockallia enigmatica sp. nov.

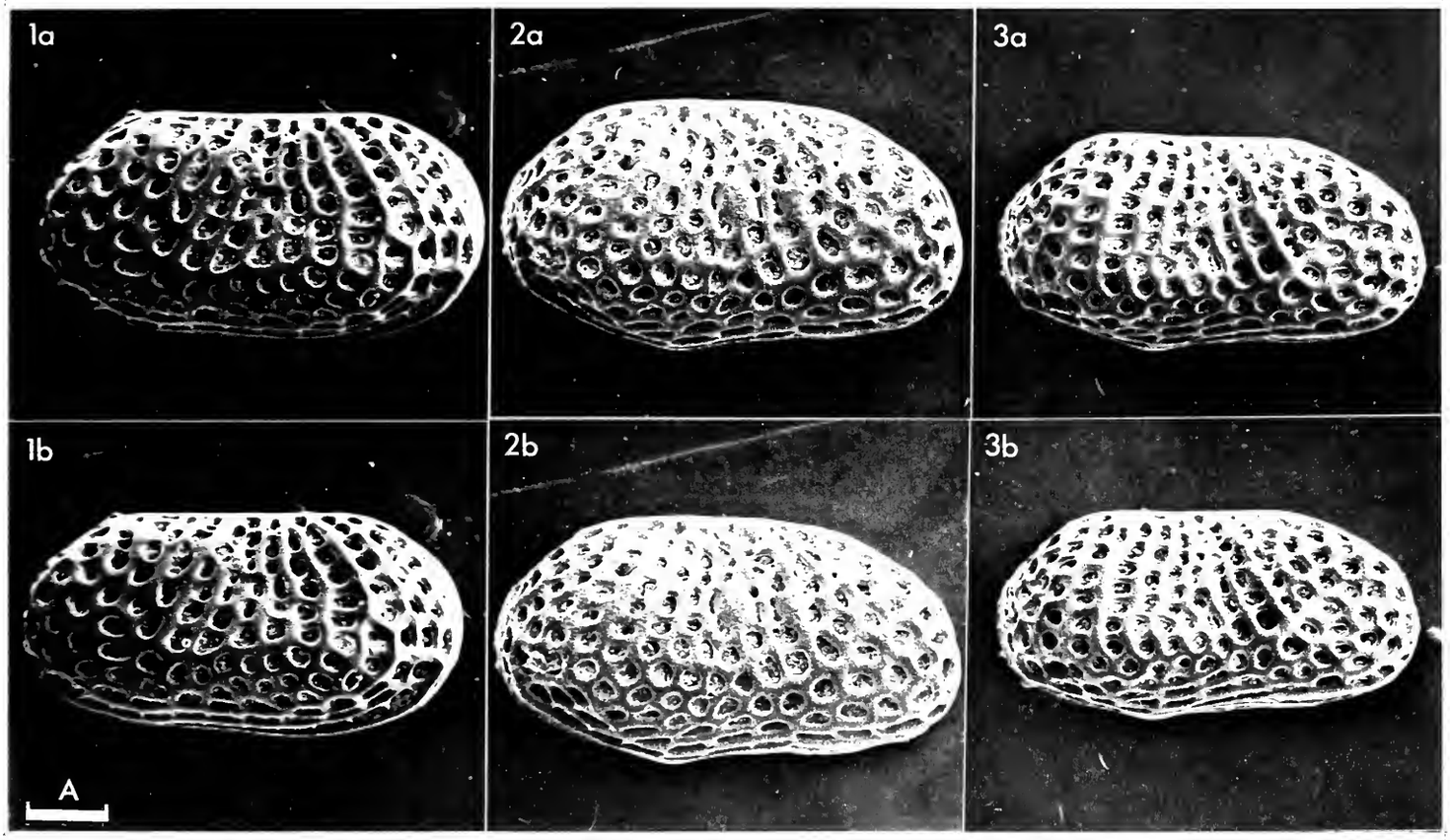
Holotype: Brit. Mus. (Nat. Hist.) **OS 7599**, ♀ RV.
[Paratypes: Brit. Mus. (Nat. Hist.) **OS 7600 - OS 7605**].

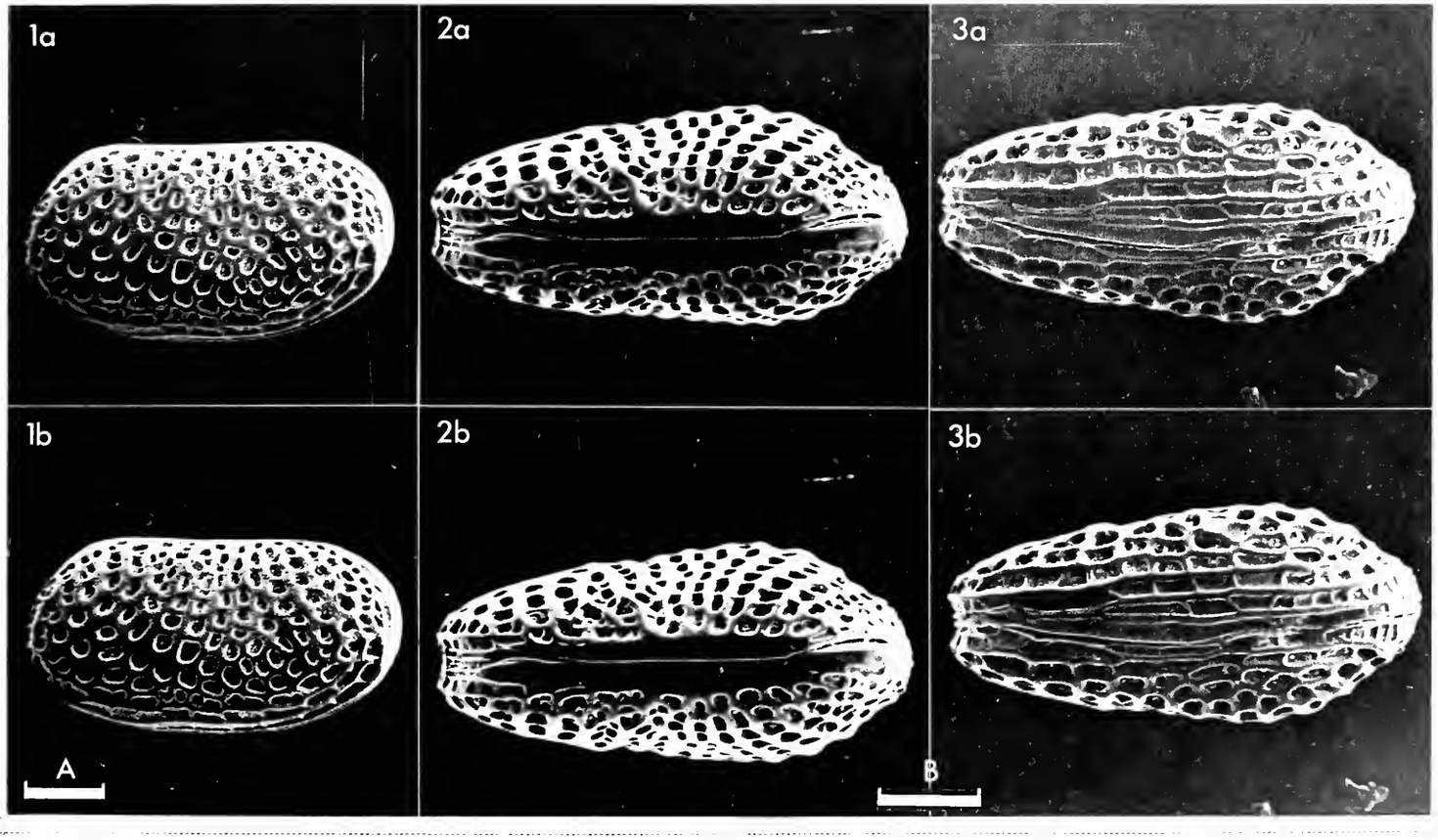
Type locality: Rockall Trough, lat. 55° 02.53'N, long. 12° 02.68'W. Recent, marine, *Globigerina* Ooze: depth 2,880m.

Derivation of name: Latin *aenigmaticus*, an enigma: alluding to the perplexing taxonomic status of this species.

Explantion of Plate 5, 140

Fig. 1, juv. -1, LV, ext. lat. (paratype, **OS 7600**, 480 μm long); figs. 2, 3, juv. -1 car., (paratype, **OS 7602**, 480 μm long); fig. 2, ext. dors. fig. 3, ext. vent.
Scale A (100 μm; x 110), fig. 1; scale B (100 μm; x 140), figs. 2, 3.


1a
2a
3a
1b
2b
3b
A


1a
2a
3a
1b
2b
3b
A
B

Figured specimens: Brit. Mus. (Nat. Hist.) nos. **OS 7599** (holotype, ♀ RV: Pl. 5, 138, fig. 2), **OS 7600** (juv. -1 LV: Pl. 5, 140, fig. 1), **OS 7602** (juv. -1 car.: Pl. 5, 140, figs. 2, 3), **OS 7603** (♀ LV: Pl. 5, 138, fig. 1; Pl. 5, 142, figs. 1 - 4), **OS 7604** (♂ RV: Pl. 5, 138, fig. 3, Pl. 5, 144, figs. 1 - 4). **OS 7599**, **OS 7600**; from lat. 55° 02.53'N, long. 12° 02.68'W, 2880m; **OS 7602** from lat. 56° 55.20'N, long. 10° 29.80'W, 2250m; **OS 7603** from lat. 54° 40.95'N, long. 15° 10.89'W, 2,500m; **OS 7604** from lat. 55° 11.29'N, 15° 50.84'W, 2,000m.

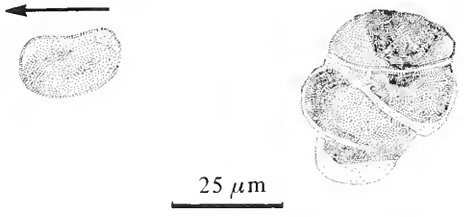
Diagnosis: As for genus.

Remarks: *R. enigmatica* occurs frequently in Holocene and Recent samples from the Rockall Trough ranging in depth from 1,040m to 4,000m. It occurs commonly in association with various species of *Echinocythereis* and *Krithe* and with *Muellerina abyssicola* (Sars) and *Ambocythere caudata* van den Bold.

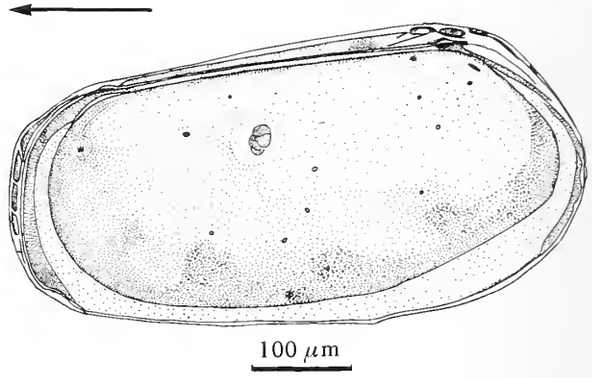
Distribution: The species seems to be confined to the Holocene and Recent deposits of the Rockall Trough area.

Explanation of Plate 5, 142

Figs. 1 - 4, ♀ LV, (paratype, **OS 7603**, 570 μm long): fig. 1, int. lat.; fig. 2, post. hinge; fig. 3, ant. hinge; fig. 4, musc. sc. Scale A (150 μm; x 90), fig. 1; scale B (50 μm; x 300), figs. 2, 3; scale C (50 μm; x 360), fig. 4.



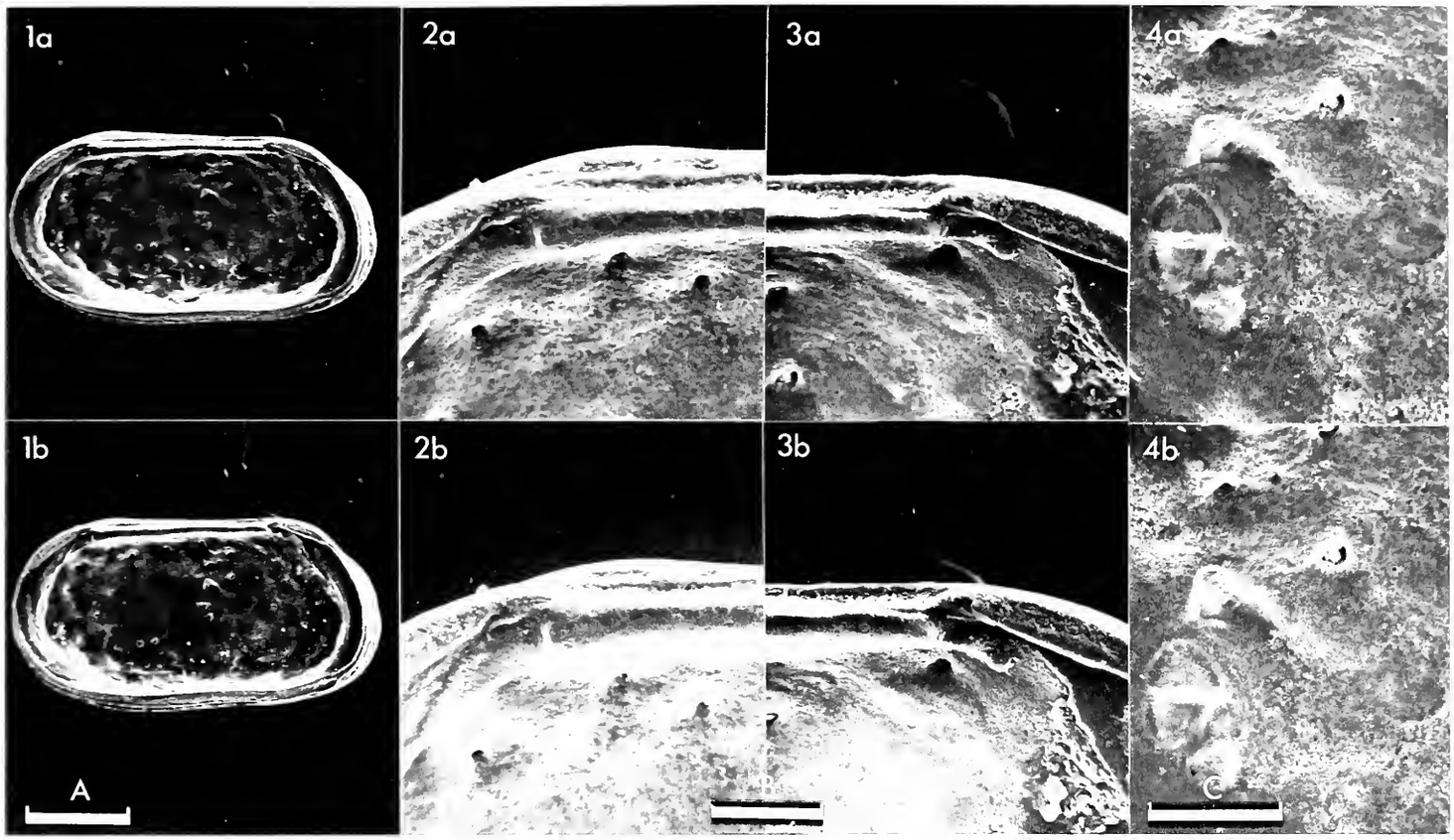
Text-fig. 1. Adductor and frontal muscle scars of ♀ RV. (**OS 7599**).

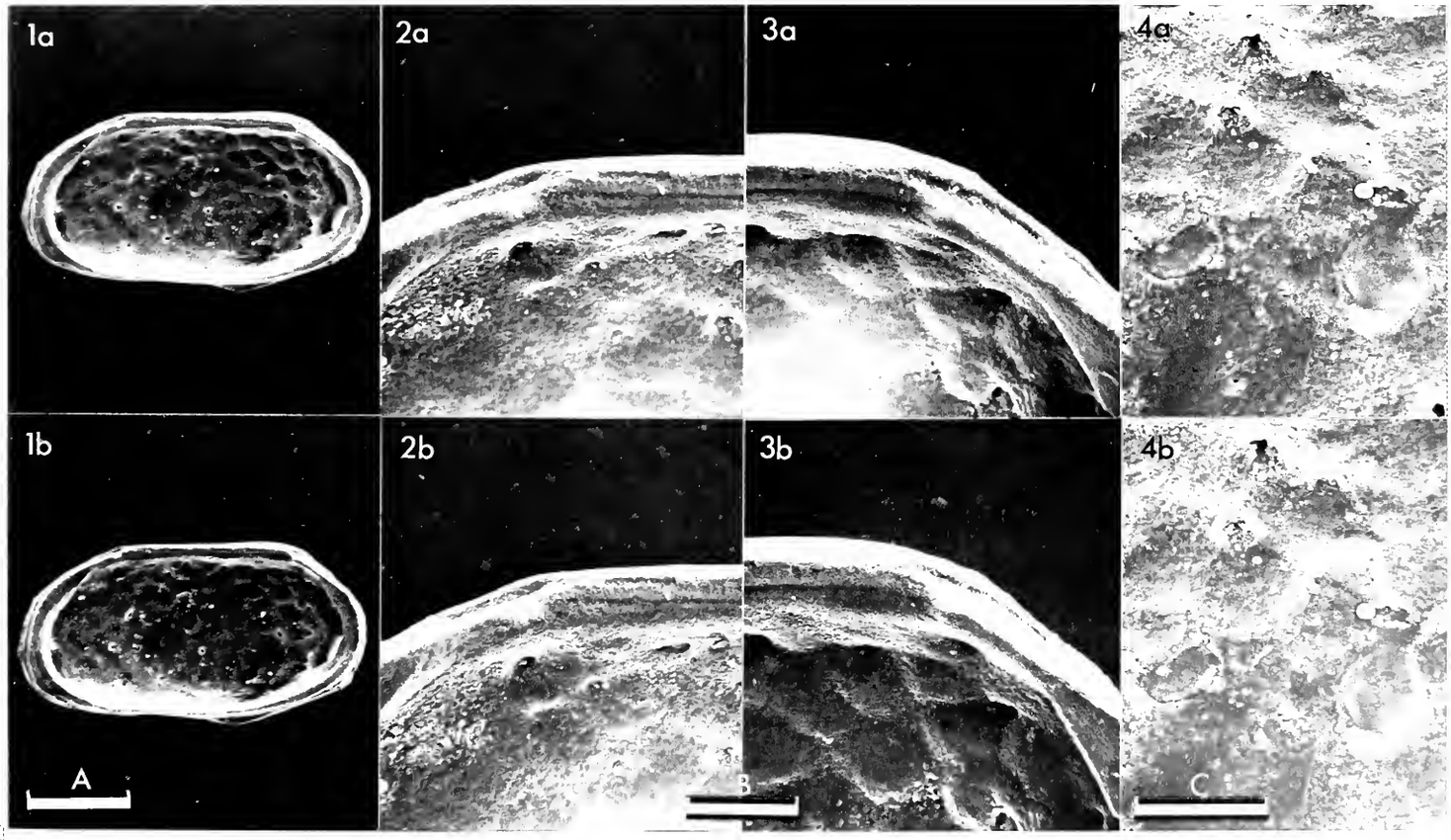


Text-fig. 2. Internal view of ♀ LV. (**OS 7603**).

Explanation of Plate 5, 144

Figs. 1 - 4, ♂ RV, (paratype, **OS 7604**, 540 μm long): fig. 1, int. lat.; fig. 2, ant. hinge; fig. 3, post. hinge; fig. 4, musc. sc. Scale A (150 μm; x 90), fig. 1; scale B (50 μm; x 300), figs. 2, 3; scale C (50 μm; x 360), fig. 4.


1a
2a
3a
4a
1b
2b
3b
4b
A
B
C


1a
2a
3a
4a
1b
2b
3b
4b
A
B
C

595.337.14 (119.9) (261.268 : 162.002.050 + 162.005.051 + 161.001.052 + 161.001.051) : 551.313.1

ON *CALLISTOCYTHERE MURRAYI* WHITTAKER sp. nov.

by John E. Whittaker
(British Museum [Natural History], London)

Callistocythere murrayi sp. nov.

Holotype: Brit. Mus. (Nat. Hist.) **1977.45**, ♀ car.
[Paratypes: Brit. Mus. (Nat. Hist) **1977.46 - 56**].

Type locality: Mother Siller's Channel (station 135), a tidal creek in Christchurch Harbour, Dorset, S England; approx. lat. 50°43'N, long. 1°45'W. Recent, brackish water.

Derivation of name: After Professor J.W. Murray, University of Exeter, in honour of his Christchurch Harbour ecological studies.

Diagnosis: Coarsely reticulate. Pattern of prominent ridges distinctive, particularly the two curved posterior ones which continue into ventral and a dorsal longitudinal ridges, respectively, the latter continuing through the eye-spot to end antero-ventrally; central area of valve with short ridges anastomosing to a further main longitudinal ridge just above mid height. Shape of copulatory appendages distinctive.

Explanation of Plate 5, 146

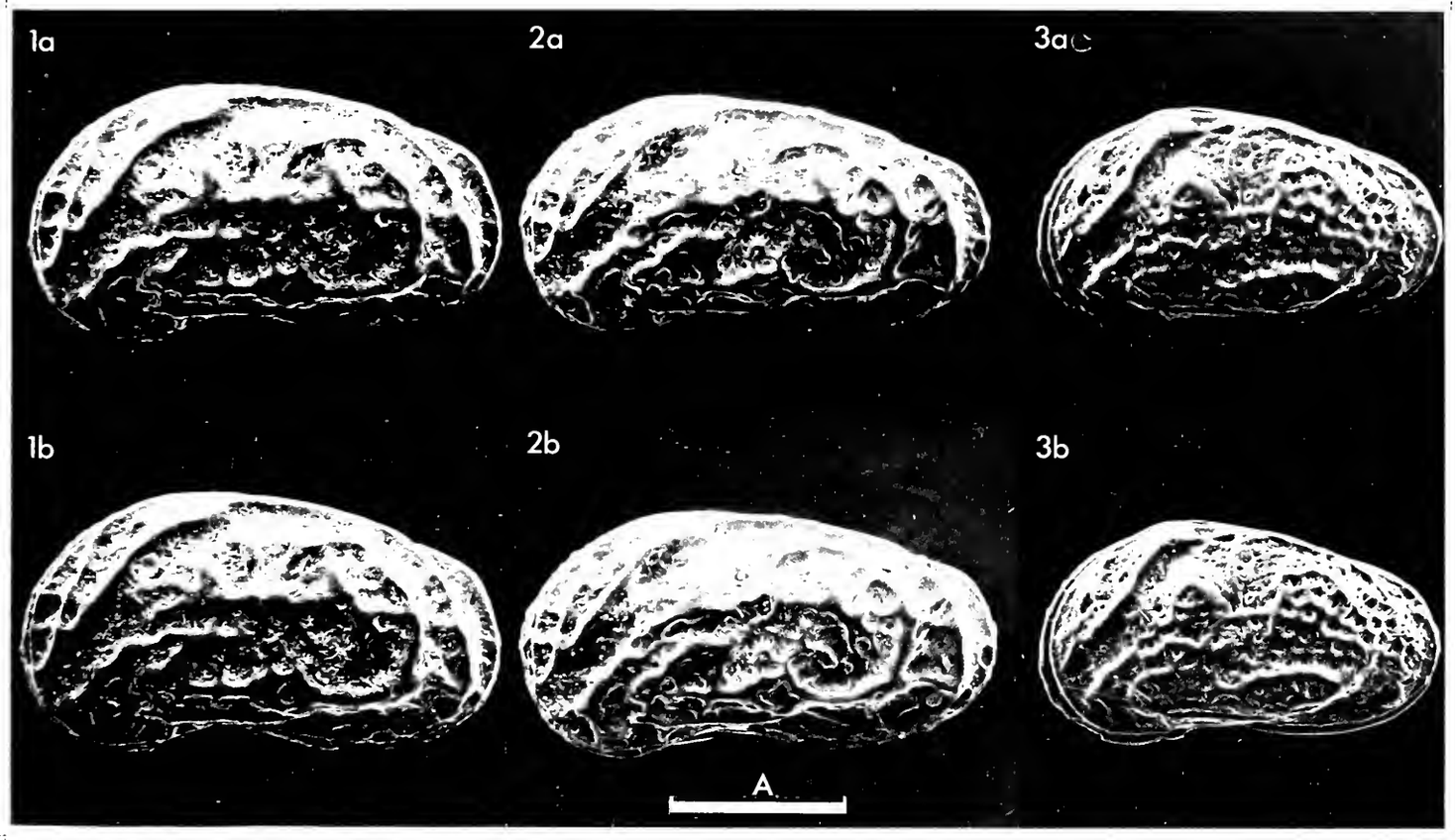
Fig. 1, ♀ car., ext. lt. lat. (holotype, **1977.45**, 500 μm long); fig. 2, ♂ car., ext. lt. lat. (paratype, **1977.46**, 490 μm long); fig. 3, juv. (-1) car., ext. lt. lat. (paratype, **1977.47**, 420 μm long).
Scale A (200 μm; x 130), figs. 1 - 3.

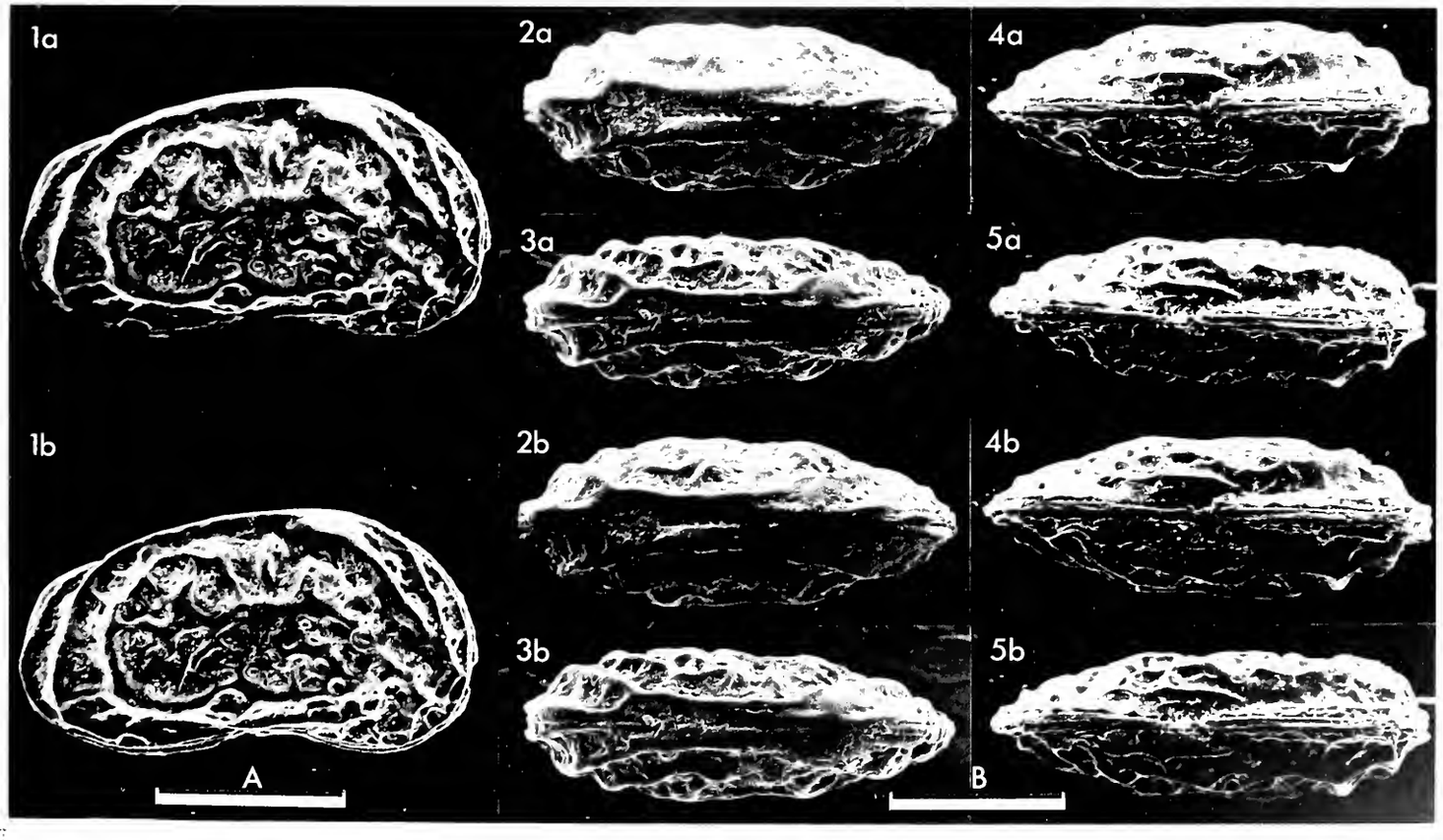
Figured specimens: Brit. Mus. (Nat. Hist.) nos. **1977.45** (holotype, ♀ car.: Pl. 5, 146, fig. 1), **1977.46** (♂ car.: Pl. 5, 146, fig. 2), **1977.47** (juv -1 car.: Pl. 5, 146, fig. 3), **1977.48** (♀ car.: Pl. 5, 148, fig. 1), **1977.49** (♀ car.: Pl. 5, 148, fig. 2), **1977.50** (♂ car.: Pl. 5, 148, fig. 3), **1977.51** (♀ car.: Pl. 5, 148, fig. 4), **1977.52** (♂ car.: Pl. 5, 148, fig. 5), **1977.53** (♂ LV: Pl. 5, 150, fig. 1; Pl. 5, 152, figs. 1, 3, 6), **1977.54** (♀ RV and soft parts: Pl. 5, 150, fig. 2), **1977.55** (♂ RV and soft parts: Pl. 5, 150, fig. 3, Text-fig. 1), **1977.56** (♀ RV: Pl. 5, 152, figs. 2, 4, 5).

1977.45 - 47, 49, 50, 54 - 56 collected alive from *Fucus ceranoides* with epiphytes at the type locality by J.E. Whittaker, 5th August 1969; salinity 7.4‰, water temperature 21.8°C. **1977.48, 51 - 53** collected by J.W. Murray from sediment with green algae, 7th January 1960, at same locality; salinity 0.8‰, water temperature 4.5°C.

Explanation of Plate 5, 148

Fig. 1, ♀ car., ext. rt. lat. (paratype, **1977.48**, 500 μm long); fig. 2, ♀ car., ext. dors. (paratype, **1977.49**, 500 μm long); fig. 3, ♂ car., ext. dors. (**1977.50**, 490 μm long); fig. 4, ♀ car., ext. vent. (paratype, **1977.51**, 510 μm long); fig. 5, ♂ car., ext. vent. (paratype, **1977.52**, 500 μm long).
Scale A (200 μm; x 130), fig. 1; scale B (200 μm; x 120).


1a
2a
3a
1b
2b
3b
A


1a
2a
4a
3a
5a
1b
2b
4b
3b
5b
A
B

Remarks: The present species has been compared with a great number of Recent European members of the genus, particularly from the Mediterranean, (colls. of J. Athersuch, G.S. Brady, A.M. Norman, G.W. Müller, G. Ruggieri and K. Wouters) and is found to be new.

Distribution: *C. murrayi* sp. nov. is known so far only from the type locality and from a few other tidal creeks in the British Isles: Cresswell River at West Williamston, Dyfed, SW Wales (collected by J.E. Robinson), and the following East Anglian localities: River Bure and Breydon Water, near Yarmouth, Norfolk; River Stour at Manningtree, Essex; and Lothing Creek, Mutford, Suffolk (all from Brady Coll., Hancock Mus., Newcastle-upon-Tyne, respectively faunal slide nos. **U**, $\mathbf{W_1}$, **Y** and $\mathbf{F_1}$). Associated fauna in all cases includes *Cyprideis torosa* (Jones), *Elofsonia baltica* (Hirschmann), *Loxoconcha elliptica* Brady, *Cytherura gibba* (O.F. Müller), *Leptocythere ilyophila* (Hirschmann), *L. lacertosa* (Hirschmann) and/or *L. castanea* (Sars). Such an exclusively brackish habitat for a species of *Callistocythere* appears to be rare, and is, as far as I am aware, the first so far reported from European waters. Whatley & Moguilevsky (1975: *Bull. Am. Paleont.*, **65**, 509), however, cite a number of examples in their discussion on the distribution and ecology of Argentinian Leptocytheridae.

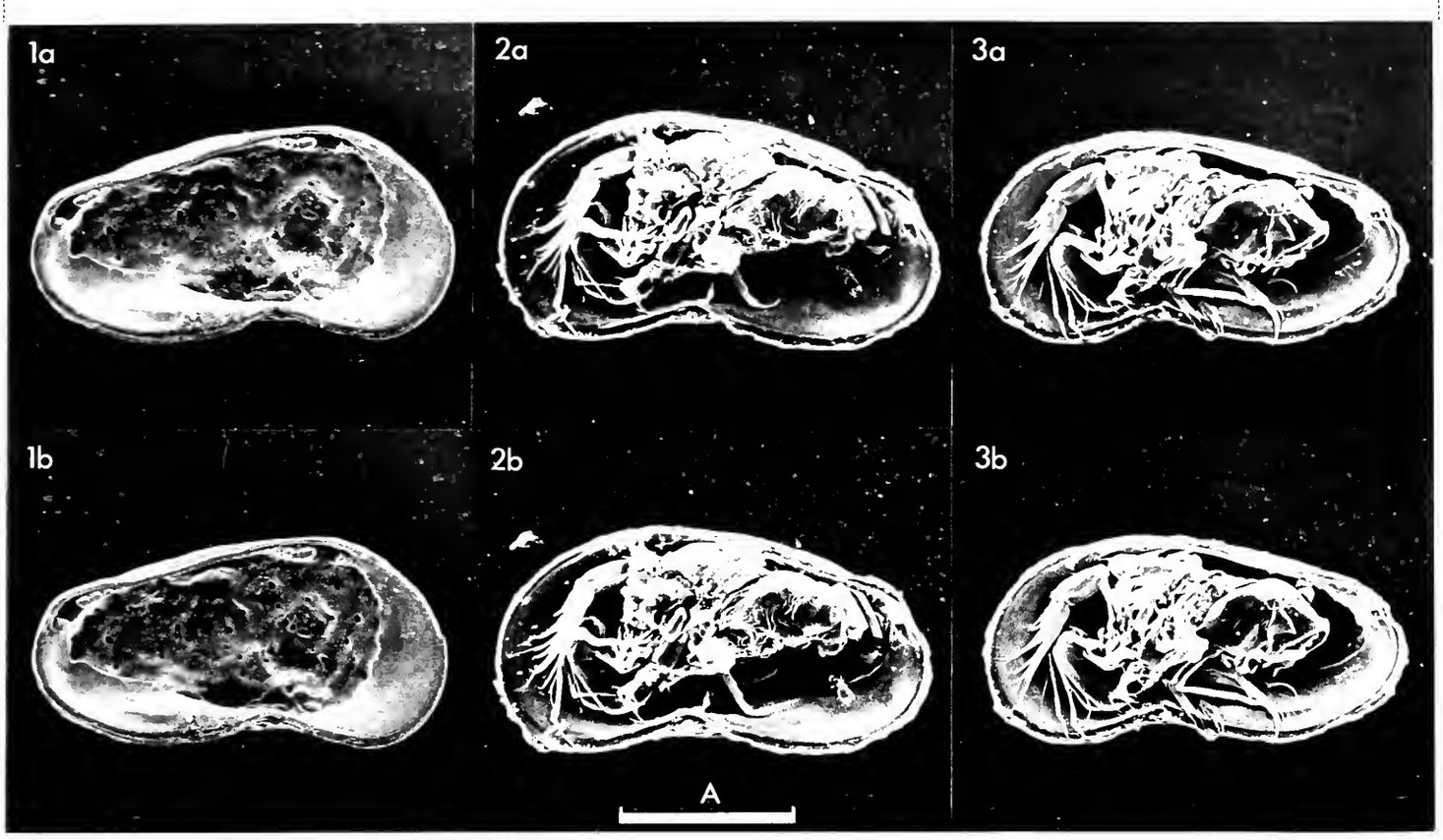
Explanation of Plate 5, 150

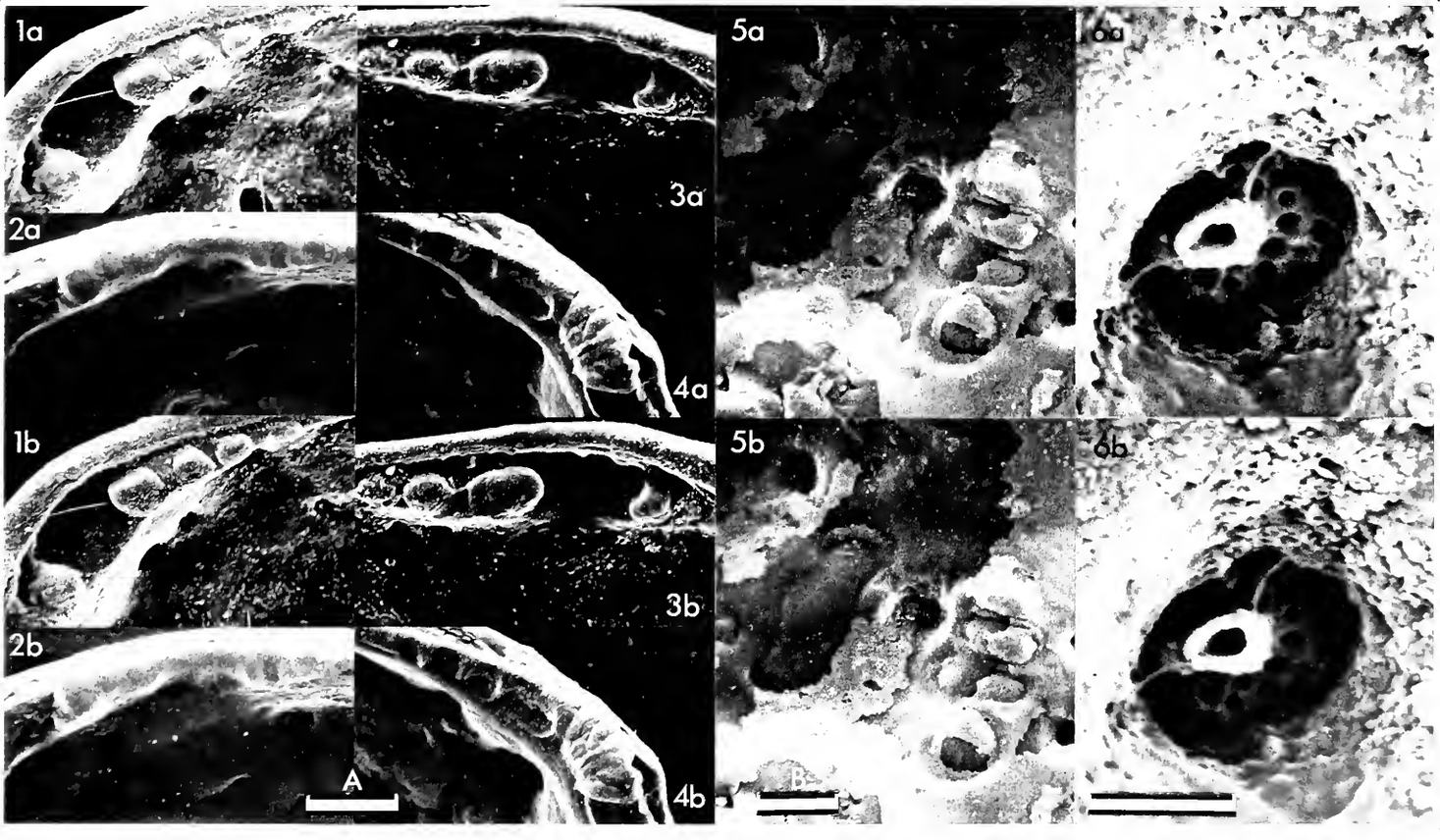
Fig. 1, ♂ LV, int. lat. (paratype, **1977.53**, 490 μm long); fig. 2, ♀ RV, int. lat. (paratype, **1977.54**, 500 μm long) showing soft parts; fig. 3, ♂ RV, int. lat. (paratype, **1977.55**, 490 μm long) showing soft parts.
Scale A (200 μm; x 120), figs. 1 - 3.

Text-fig. 1, ♂ rt. copulatory appendage (x 415; **1977.55**). (Drawing kindly provided by Dr. J. Athersuch). (Scale = 50 μm).

Explanation of Plate 5, 152

Figs. 1, 3, 6, ♂ LV, int. lat. (paratype, **1977.53**, 490 μm long): fig. 1, post. hinge, fig. 3, ant. hinge; fig. 6, int. view of pore (mid region) showing sieve plate. Figs. 2, 4, 5, ♀ RV, int. lat. (paratype, **1977.56**, 190 μm long): fig. 2, ant. hinge; fig. 4, post. hinge; fig. 5, musc. sc.
Scale A (50 μm; x 350), figs. 1 - 4; scale B (25 μm; x 450), fig. 5; scale C (5 μm; x 4,000), fig. 6.


1a
2a
3a
1b
2b
3b
A


1a
3a
2a
4a
1b
3b
2b
A
4b
5a
6a
5b
6b
B

General Index

Index; Geological Horizon

See **1** (2) 5 - 22 (**1973**) for explanation of the Schedules in the Universal Decimal Classification.

Index; Geographical Location

See **1** (2) 5 - 22 (**1973**) for explanation of the Schedules in the Universal Decimal Classification.

A Stereo-Atlas of Ostracod Shells

edited by R. H. Bate, J. W. Neale, Lesley M. Sheppard
and David J. Siveter

Volume 5, 1978

Part 1 (pp. 1-80): 30th June, 1978

Part 2 (pp. 81-154): 22nd December, 1978

Published by The British Micropalaeontological Society
in association with Robertson Research International Ltd., Llandudno, Wales

Contents

Stereo-Atlas of Ostracod Shells: Vol. 5, Part 2

CONTENTS

Prepaid annual subscription (valid for Volume **6**, 1979): £20.00 or US $ 44.00 for 2 Parts (post free)
Price per Part: £20.00 or US $ 44.00

Back volumes: Vol. **1** (4 Parts): £20.00; price per Part: £5.00
Vol. **2**, (4 Parts: £28.00; price per Part: £7.00
Vol. **3** (2 Parts): £24.00; price per Part: £12.00
Vol. **4** (2 Parts): £30.00; price per Part: £15.00
Vol. **5** (2 Parts): £32.00; price per Part: £16.00

Prices of Numbers as shown in Lists of Contents for each Part
Postage extra in sales of all back Numbers and back Parts
No trade discount is allowed on the subscription rate

Orders should be addressed to: Dr. C.W. Haskins, Robertson Research International Ltd., 'Ty'n-y-Coed', Llanrhos, Llandudno, Gwynedd, LL30 1SA.
Cheques should be made payable to Robertson Research Co. (Stereo-Atlas Account)